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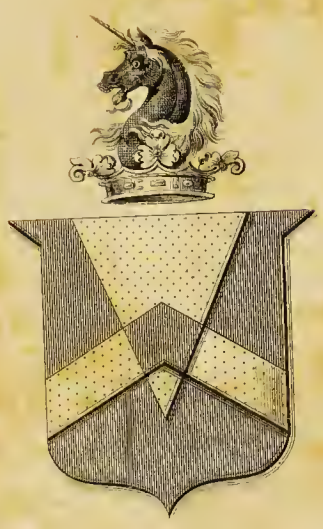

William P. W. Norsworthy.

SILVA:

OR, A

DISCOURSE

OF

FOREST-TREES,

And the Propagation of TIMBER in His MAJESTY'S Dominions:

As it was delivered in the *ROYAL SOCIETY* the 15*th* of *October*, 1662, upon Occasion of certain *Quæries* propounded to that *Illustrious Assembly*, by the Honourable and Principal *Officers* and *Commissioners* of the NAVY.

IN TWO BOOKS.

TOGETHER WITH

An Historical Account of the *Sacredness* and *Use* of

STANDING GROVES.

TERRA, *A Philosophical* ESSAY *of* EARTH; *being a Lecture in Course.*

To which is annex'd,

POMONA: Or an APPENDIX concerning FRUIT-TREES, in relation to *CYDER*; the Making, and several Ways of Ordering it.

Publish'd by express ORDER *of the* ROYAL SOCIETY.

ALSO

KALENDARIUM HORTENSE; Or, The GARDENER'S ALMANACK;

Directing what is to do *Monthly* throughout the Year.

By *JOHN EVELYN*, Esq; Fellow of the *Royal Society*.

The FIFTH EDITION.

——— *Tibi res antiquæ laudis & artis*
Ingredior, tantos ausus recludere fontes. VIRG.

LONDON:

Printed for J. WALTHOE, J. KNAPTON, D. MIDWINTER, A. BETTESWORTH, J. TONSON, W. INNYS, R. ROBINSON, J. WILFORD, J. OSBORN and T. LONGMAN, B. MOTTE, A. WARD; and sold also by F. FAYRAM.

M. DCC. XXIX.

1764

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TO THE READER.

AFTER *what the* Frontiſpiece *and* Porch *of this* Wooden Edifice *preſents you, I ſhall need no farther to repeat the* Occaſion *of this following* Diſcourſe: *I am only to acquaint you, That as it was delivered to the* Royal Society *by an unworthy* Member *thereof, in Obedience to their* Commands; *by the* ſame *it is now* re-publiſh'd *without any farther Proſpect: And the* Reader *is to know, that if theſe dry* Sticks *afford him any* Sap, *it is one of the* leaſt *and* meaneſt *of thoſe* Pieces *which are every Day produc'd by that* Illuſtrious Aſſembly, *and which enrich their* Collections, *as ſo many* Monuments *of their accurate* Experiments, *and publick Endeavours, in order to the Production of* real *and* uſeful Theories, *the Propagation and Improvement of* Natural Science, *and the Honour of their* Inſtitution. *If to* this *there be any Thing ſubjoined* here, *which may a while beſpeak the Patience of the* Reader, *it is only for the Encouragement of an* Induſtry, *and worthy* Labour, *much in our Days* neglected, *as haply reputed a* Conſideration *of too ſordid and vulgar a Nature for* Noble Perſons *and* Gentlemen *to buſy themſelves withal, and who oftner find out Occaſions to* Fell-down *and Deſtroy their Woods and* Plantations, *than either to* Repair *or* Improve *them.*

BUT we are not without Hopes of taking off theſe Prejudices, *and of reconciling them to a* Subject *and an* Induſtry *which has been* conſecrated (*as I may ſay*) *by as* good, *and as* great *Perſons, as any the World has produced; and whoſe Names we find mingled amongſt* Kings *and* Philoſophers, *grave* Senators *and* Patriots *of their Country: For ſuch of Old were* Solomon, Cyrus, *and* Numa, Licinius, *ſurnamed* Stolo, Cato, *and* Cincinnatus; *the* Piſo's, Fabii, Cicero, *the* Plinies, *and thouſands more whom I might enumerate, that diſdained not to cultivate theſe* Ruſticities *even with their own Hands, and to eſteem it no ſmall* Acceſſion *to dignify their* Titles, *and adorn their* Purple

with

with these rural Characters *of their Affections to* Planting, *and Love of this Part of* Agriculture, *which has transmitted to us their venerable* Names *through so many* Ages *and* Viciſſitudes *of the World.*

THAT famous Anſwer *alone which the* Perſian Monarch *gave to* Lyſander, *will ſufficiently juſtify that which I have ſaid, beſides what we might add out of the* Writings *and* Examples *of the reſt: But ſince* theſe *may ſuffice, after due Reproofs of the late impolitick* Waſte, *and univerſal* Sloth *amongſt us; we ſhould now turn our* Indignation *into* Prayers, *and addreſs ourſelves to our better-natur'd* Countrymen; *that ſuch* Woods *as do yet remain entire, might be carefully* preſerved, *and ſuch as are* deſtroy'd, *ſedulouſly* repaired: *It is what all Perſons who are* Owners *of* Land *may contribute to, and with infinite* Delight, *as well as* Profit, *who are touch'd with that laudable* Ambition *of imitating their Illuſtrious* Anceſtors, *and of worthily ſerving their* Generation. *To theſe my earneſt and humble* Advice *ſhould be, That at their very firſt Coming to their* Eſtates, *and as ſoon as they get* Children, *they would ſeriouſly think of* this Work *of* Propagation *alſo: For I obſerve there is no Part of* Husbandry, *which Men commonly more* fail *in*, neglect, *and have Cauſe to* repent *of, than that they did not begin* Planting betimes, *without which, they can expect neither* Fruit, Ornament, *or* Delight *from their* Labours. *Men ſeldom plant* Trees *till they begin to be* Wiſe, *that is, till they grow* Old, *and find by* Experience *the* Prudence *and* Neceſſity *of it. When* Ulyſſes, *after a ten Years Abſence, was return'd from* Troy, *and coming home, found his aged* Father *in the Field planting of* Trees, *he asked him, Why (being now ſo far advanc'd in Years) he would put himſelf to the Fatigue and Labour of Planting* that *which he was never likely to enjoy the Fruits of? The good old Man (taking him for a Stranger) gently reply'd*; I plant (*ſays he*) againſt my Son *Ulyſſes* comes home. *The* Application *is obvious and inſtructive for both* Old *and* Young: *And we have a more modern Inſtance, almoſt alike that of the good old* Laertes. *Here then upon the Complaint of learned Perſons and great Travellers, deploring the Loſs of many rare and precious Things*, Trees *and* Plants, *eſpecially inſtancing the* Balſam *Tree of* Gilead (*now almoſt, if not altogether failing, and no more to be found where it grew in great Plenty*) *He applies himſelf to young* Eperous, *to conſider it ſeriouſly, and to fall a planting while Time is before them, with this encouraging Exclamation.* Agite, ô Adoleſcentes, & antequam canicies vobis obrepat, ſtirpes jam alueritis, quæ vobis cum inſigni utilitate, delectationem etiam adferent: Nam quemadmodum canicies temporis ſucceſſu, vobis inſciis, ſenſim obrepit: Sic natura vobis inſerviens educabit quod telluri

See Petrarch de Remed. utriuſque fortunæ, *Lib.* i. *Dial.* 57.

telluri veſtræ concredetis, modò prima initia illi dederitis, &c. *Pet. Bellonius* De neglecta ſtirpium Cultura. *Problema* ix.

MY next Advice *is, that they do not eaſily commit themſelves to the* Dictates *of their ignorant* Hinds *and* Servants, *who are (generally ſpeaking) more fit to Learn than to Inſtruct.* Male agitur cum Domino quem Villicus docet, *was an Obſervation of old* Cato's; *and 'twas* Iſchomachus *who told* Socrates (*diſcourſing one Day upon a like Subject*) That it was far eaſier to *Make* than to *Find* a good Husbandman: *I have often prov'd it ſo in* Gardeners; *and I believe it will hold in moſt of our* Country *Employments: Country People univerſally know that all Trees conſiſt of* Roots, Stems, Boughs, Leaves, &c. *but can give no Account of the* Species, Vertues, *or farther Culture, beſides the making of a Pit or Hole; caſting and treading in the Earth,* &c. *which require a deeper Search than they are capable of: We are then to exact* Labour, *not* Conduct *and* Reaſon, *from the greateſt Part of them; and the Buſineſs of* Planting *is an* Art *or* Science (*for ſo* Varro *has ſolemnly defined it*) *and that exceedingly wide of Truth, which (it ſeems) many in his Time accounted of it*; Facillimam eſſe, nec ullius acuminis Ruſticationem, *namely, That it was an eaſy and inſipid Study. It was the ſimple* Culture *only, with ſo much Difficulty retrieved from the late Confuſion of an inteſtine and bloody* War, *like that of* Ours, *and now put in* Reputation *again, which made the Noble* Poet *write,*

Vide & Curtium, *Lib.* vii, *&c.*

De R. R.

——— How hard it was
Low Subjects with illuſtrious Words to grace!

——— *Verbis ea vincere magnum*
Quàm ſit, & anguſtis hunc addere rebus honorem!
Georg. iii.

Seeing, as the Orator *does himſelf expreſs it,* Nihil eſt homine libero dignius; *there is nothing more becoming and worthy of a* Gentleman, *no, not the Majeſty of a* * Conſul. *In antient and beſt Times, Men were not honour'd and eſteem'd for the only Learned, who were great* Linguiſts, *profound* Criticks, *Readers and Devourers of Books; but ſuch whoſe Studies conſiſted of the Diſcourſes, Documents and Obſervations of their* Fore-Fathers, *antient and venerable* Perſons; *who (as the excellent Author of the* Rites *of the* Iſraelites, Cap. xv, &c. *acquaints us) were obliged to inſtruct and inform their Children of the wonderful Things God had done for their Anceſtors; together with the Precepts of the* Moral Law, Feaſts, *and Religious Ceremonies: But taught them likewiſe all that concerned* Agriculture, *joined with Leſſons of perpetual Practice, in which they were, doubtleſs, exceedingly knowing; whilſt during ſo many Ages, they employed themſelves almoſt continually in it: And though now a-days this* Noble Art *be for the moſt part left to be exerciſed amongſt us by People of groſſer and unthinking Souls; yet there is no* Science *whatever*

In agris erant tunc Senatores. *Cic. de Senect.*

* Silvæ ſunt Conſule dignæ. *See this of the* Poet *interpreted,* Scaliger, *L.* i. *c.* i. *Poet.* P. Nennius, Sueton. Jul. in Lipſium Tacit. iv. Annal. 27. *concerning the* Quæſtors *Office.*

which

which contains a vaſter Compaſs of Knowledge, infinitely more uſeful and beneficial to Mankind, than the fruitleſs and empty Notions of the greateſt Part of Speculatiſts; *counted to be the only* Eruditi *and Learned Men. An* Iſraelite, *who from* Tradition *of his Fore-fathers, his own* Experience, *and ſome modern Reading, had informed himſelf of the* Religion *and* Laws *which were to regulate his Life; and knew how to procure Things neceſſary: Who perfectly underſtood the ſeveral Qualities of the* Earth, Plants, *and* Places *agreeable to each Sort, and to cultivate, propagate, defend them from Accidents, and bring them to Maturity: That alſo was skill'd in the Nature of* Cattle, *their Food, Diſeaſes, Remedies,* &c. *which thoſe who amongſt us paſs for the moſt learned and accompliſhed* Gentlemen *and* Scholars, *are, for the moſt part, groſly ignorant of, look upon as* baſe, ruſtick, *and Things below them, is (in this Learned Author's Opinion) infinitely more to be valued than a Man brought up either in wrangling at the* Bar, *or the noiſy and ridiculous Diſputes of our* Schools, &c. *To this Senſe the Learned* Modena: *And 'tis remarkable, that after all that wiſe* Solomon *had ſaid, that* All *was* Vanity and Vexation of Spirit (*among ſo many* Particulars *he reckons up*) *he ſhould be altogether* ſilent, *and ſay nothing concerning* Husbandry; *as, doubtleſs, conſidering it the moſt uſeful, innocent, and laudable Employment of our Life, requiring thoſe who cultivate the Ground to live in the Country, remote from* City-*Luxury, and the Temptation to the Vices he condemns. It was indeed a plain Man* (*a* Potter *by* Trade) *but let no Body deſpiſe him, becauſe a* Potter (Agathocles, *and a* King *was of that* Craft) *who, in my Opinion, has given us the true Reaſon why* Husbandry, *and particularly* Planting, *is no more improved in this Age of ours; eſpecially, where Perſons are* Lords *and Owners of much* Land: *The Truth is, ſays he, when Men have acquired any conſiderable* Fortune *by their* good Husbandry *and* Experience (*forgetting that the greateſt* Patriarchs, Princes, *their* Sons *and* Daughters, *belonged to the* Plough, *and the* Flock) *they account it a* Shame *to breed up their* Children *in the ſame Calling which they themſelves were educated in, but preſently deſign them* Gentlemen: *They muſt, forſooth, have a* Coat *of* Arms, *and live upon their* Eſtates; *ſo as by the Time his* Son's *Beard is grown, he begins to be aſhamed of his* Father, *and would be ready to defy him, that ſhould upon any Occaſion mind him of his* honeſt Extraction: *And if it chance that the good Man have other* Children *to provide for,* This *muſt be the Darling, be bred at* School, *and the* Univerſity, *whilſt the reſt muſt to* Cart *and* Plow *with the* Father, &c. *This is the* Cauſe, *ſays my* Author, *that our* Lands *are ſo ill* cultivated *and neglected. Every Body will ſubſiſt upon their own* Revenue, *and take their*

Paliſſy, le Moyen de devenir Riche.

Pleaſure,

Pleasure, *whilst they resign their* Estates *to be managed by the most* Ignorant (*which are the* Children *whom they leave at home, or the* Hinds *to whom they commit them*) *When as in* Truth, *and in* Reason, *the more* Learning, *the better* Philosophers, *and the greater* Abilities *they possess, the* more, *and the* better *are they* qualified *to* Cultivate *and Improve their* Estates: *Methinks this is well and rationally argued.*

AND now you have in part what I had to produce in Extenuation of this Adventure; *that* Animated *with a* Command, *and Assisted by divers* worthy Persons (*whose* Names *I am prone to* celebrate *with all just* Respects) *I have presumed to cast in my* Symbol; *which, with the rest that are to follow, may* (*I hope*) *be in some Degree serviceable to* him (*whoe'er the happy* Person *be*) *that shall oblige the* World *with that compleat* System *of* Agriculture, *which as yet seems a* Desideratum, *and wanting to its full Perfection. It is* (*I assure you*) *what is one of the Principal* Designs *of the* ROYAL SOCIETY, *not in this* Particular *only, but through all the* Liberal *and more useful* Arts; *and for which* (*in the Estimation of all equal* Judges) *it will merit the greatest of* Encouragements; *that so, at last, what the Learned* Columella *has wittily reproached, and complained of, as a Defect in that* Age *of* his, *concerning* Agriculture *in general, and is applicable* here, *may attain its desired* Remedy *and* Consummation *in* This *of* Ours.

SOLA enim Res Rustica, quæ sine dubitatione proxima, & quasi consanguinea Sapientiæ est, tam discentibus eget, quam magistris: Adhuc enim Scholas Rhetorum, & Geometrarum, Musicorumque, vel quod magis mirandum est, contemptissimorum vitiorum officinas, gulosius condiendi cibos, & luxuriosius fercula struendi, capitumque & capillorum concinnatores, non solum esse audivi, sed & ipse vidi; Agricolationis neque Doctores qui se profiterentur, neque Discipulos cognovi. *But this I leave for our* Peruk'd Gallants *to interpret, and should now apply myself to the* Directive *Part, which I am all this while bespeaking, if after what I have said in the several* Paragraphs *of the ensuing* Discourse *upon the* Argument *of* Wood (*and which in this Edition coming* Abroad *with innumerable* Improvements *and* Advantages (*so furnished, as I hope shall neither reproach the* Author, *or repent the* Reader) *it might not seem superfluous to have* premised *any Thing* here *for the Encouragement of so becoming an* Industry. *There are divers* Learned, *and judicious* Men *who have* preceeded *Me in this* Argument; *as many, at least, as have undertaken to Write and Compile vast* Herbals, *and* Theatres *of* Plants; *of which we have some of our own* Countrymen (*especially the most Industrious and Learned Mr.* Ray) *who have* (*boldly I dare affirm it*) *surpassed* any, *if not* all *the* Foreigners *that*

Præfat. ad P. Silvinum; which I earnestly recommend to the serious Perusal of our *Gentry*.

Et mihi ad sapientis vitam proximè videtur accedere. Cic. *de Senectute.*

are

are extant : In Thoſe *it is you meet with the* Deſcription *of the ſeveral* Plants, *by* Diſcourſes, Figures, Names, Places *of* Growth, *Time of* Flouriſhing, *and their* Medicinal Virtues; *which may ſupply any* Deficiency *of mine as to thoſe* Particulars; *if forbearing the* Repetition, *it ſhould by any be imputed for a* Defect, *though it were indeed none of my* Deſign: *I ſay, theſe things are long ſince performed to our hands : But there is none of theſe* (*that I at leaſt know of, and are come to my Peruſal*) *who have taken any conſiderable Pains how to* Direct *and* Encourage *us in the* Culture *of* Foreſt-Trees (*the grand* Defect *of this* Nation) *beſides ſome ſmall Sprinklings to be met withal in* Gervas Markham, *old* Tuſſer; *and of* Foreigners, *the* Country-Farm *long ſince tranſlated out of* French, *and by no means ſuitable to our Clime and* Country : *Neither have any of theſe proceeded after my* Method, *and ſo particularly*, in Raiſing, Planting, Dreſſing, *and* Governing, *&c. or ſo ſedulouſly made it their Buſineſs, to* ſpecify *the* Mechanical Uſes *of the* ſeveral Kinds, *as I have done, which was hitherto a great* Deſideratum, *and in which the* Reader *will likewiſe find ſome things altogether* New *and* Inſtructive; *and both* Directions *and* Encouragements *for the Propagation of ſome* Foreign *Curioſities of* Ornament *and* Uſe, *which were hitherto neglected. If I have upon occaſion preſumed to ſay any thing concerning their* Medicinal *Properties, it has been* modeſtly *and* frugally, *and with chief, if not only, reſpect to the poor* Wood-man, *whom none I preſume will envy, that living far from the* Phyſician, *he ſhould, in caſe of* Neceſſity, *conſult the Reverend* Druid, *his* * Oaks, *and his* Elm, Birch, *or* Elder, *for a ſhort* Breath, *a green* Wound, *or a ſore* Leg; *Caſualties incident to this hard* Labour. *Theſe are the chief* Particulars *of this enſuing* Work, *and what it pretends hitherto of* Singular, *in which let me be permitted to ſay, there is ſufficient for* Inſtruction, *and more than is extant in any* Collection *whatſoever* (abſit verbo invidia) *in this Way and upon this* Subject; *abſtracting things* practicable, *of ſolid* Uſe, *and* material, *from the* Oſtentation *and Impertinencies of divers* Writers, *who receiving all that came to hand on* truſt, *to ſwell their monſtrous* Volumes, *have hitherto impoſed upon the credulous* World, *without* Conſcience *or* Honeſty. *I will not exaſperate the* Adorers *of our antient and late* Naturaliſts, *by repeating of what our* Verulam *has juſtly pronounced concerning their* Rhapſodies (*becauſe I likewiſe honour their painful* Endeavours, *and am obliged to them for much of that I know*) *nor will I* (*with ſome*) *reproach* Pliny, Porta, Cardan, Mizaldus, Curſius, *and many others of great* Names (*whoſe* Writings *I have diligently conſulted*) *for the* Knowledge *they have imparted to me on this Occaſion*; *but I muſt deplore the Time which is* (*for the moſt part*) *ſo miſerably loſt in purſuit of their* Speculations, *where they treat upon this* Argument : *But the* World *is now adviſed, and* (*bleſſed be* God!) *infinitely*

* Nè Silvæ quidem, horridiorque naturæ facies Medicinis carent, Sacra illa parente rerum omnium, nuſquam non remedia diſponente homini ut Medicina, fieret etiam ſolitudo ipſa, *&c.* Hinc nata Medicina, *&c.* Hæc ſola naturæ placuerat eſſe remedia parata vulgo, inventu facilia, ac ſine impendio, ex quibus vivimus, *&c.* Plin. *Lib.* xxiv. *c.* i.

infinitely redeemed from that baſe and ſervile Submiſſion of our nobleſt Faculties *to their blind* Traditions. *This, you will be apt to ſay, is a haughty* Period; *but whilſt I affirm it of the* Paſt, *it* juſtifies, *and does* Honour *to the* Preſent *Induſtry of our* Age, *and of which there cannot be a* greater *and more emulous* Inſtance, *than the* Paſſion *of his* Majeſty *to encourage his* Subjects, *and of the* Royal Society (*his* Majeſty's Foundation) *who receive and promote his* Dictates, *in all that is laudable and truly* emolumental *of this Nature.*

IT is not therefore that I here preſume to inſtruct Him *in the Management of that great and auguſt* Enterprize *of reſolving to* Plant *and repair his ample* Foreſts, *and other* Magazines *of* Timber, *for the Benefit of his* Royal Navy, *and the Glory of his* Kingdoms; *but to preſent to his* Sacred Majeſty, *and to the* World, *what* Advices *I have received from* others, *obſerved myſelf, and moſt induſtriouſly* collected *from a ſtudious Propenſity to ſerve as one of the leaſt* Intelligences *in the ampler* Orb *of our* Illuſtrious Society, *and in a* Work *ſo neceſſary and important.*

AND now ſince I mention'd the Society, *give me leave* (*worthy Reader*) *as a* Member *of that* Body, *which has been the chief* Promoter *of this enſuing* Work, *and* (*as I ſtand obliged*) *to* vindicate *that* Aſſembly, *and conſequently the* Honour *of his* Majeſty *and the* Nation, *in a* Particular *which concerns it, though* (*in appearance*) *a little foreign to the preſent* Subject.

I will not ſay, that all *which I have written in the ſeveral* Paragraphs *of this* Treatiſe, *is* New; *but that there are very many* new *and* uſeful *Things, and* Obſervations (*without inſiſting on the* Methods *only*) *not hitherto delivered by any* Author, *and ſo freely communicated, I hope will ſufficiently appear: It is not therefore in behalf of any Particular which concerns* myſelf, *that I have been induced to enlarge this* Preface; *but, by taking this* Occaſion, *to encounter the unſufferable* Boldneſs *or* Ambition *of ſome* Perſons (*as well* Strangers *as others*) arrogating *to themſelves the being* Inventors *of divers* new *and uſeful* Experiments, *juſtly attributable to ſeveral* Members *of the* Royal Society †.

SO far has that Aſſembly *been from affecting* Glory, *that they ſeem rather to have declined their Due; not as aſhamed of ſo*

† Conſult *Hiſt. Roy. Soc.* and their *Regiſters.*

The Laws of *Motion*, and the Geometrical Streightning of *Curve-Lines* were firſt found out by Sir *Chriſtopher Wren* and Mr. *Thomas Neile.*

The *equated iſocrone Motion* of the Weight of a *Circular Pendulum* in a *Paraboloeid*, for the regulating of *Clocks*, and the improving *Pocket-Watches* by *Springs* apply'd to the *Ballance*, were firſt invented and demonſtrated to this Society by Dr. *Hooke*; together with all thoſe *new* and uſeful *Inſtruments, Contrivances*, and *Experiments, Mathematical* and *Phyſical*, publiſh'd in his *Poſthumous Works* by the moſt accompliſh'd Mr. *Waller, Secretary* to the *Royal Society*: And ſince thoſe, the incomparably Learned Sir *Iſaac Newton*, now *Preſident* of the *Royal Society*; Mr. *Halley*, the worthy *Profeſſor* of *Geometry* in the *Univerſity* of *Oxford*; Dr. *Grew*, and ſeveral more, whoſe Works and uſeful Inventions ſufficiently celebrate their Merits: I did mention the *Barometer*, to which might be added the prodigious Effects of the *Speculum Uſtorium*, ſurpaſſing what the *French* pretend to, as confidently, or rather *audaciouſly*, they do, and to other admirable Inventions, injuriouſly *arrogated* by *Strangers*, tho' due of right to *Engliſhmen*, and Members of this Society; but 'tis not the Buſineſs of this *Preface* to enumerate all, tho' 'twas neceſſary to touch on ſome Inſtances.

numerous

numerous and fair an Off-spring; *but as abundantly ſatisfied, that after all the hard Meaſure, and virulent* Reproaches *they had ſuſtain'd, for endeavouring by* united Attempts, *and at their own* Charges, *to improve* Real Philoſophy; *they had, from Time to Time, cultivated that* Province *in ſo many* uſeful *and profitable* Inſtances, *as are already* publiſhed *to the* World, *and will be eaſily* aſſerted *to their* Authors *before all* equitable *Judges.*

THIS being the ſole Inducement of publiſhing this Apology, *it may not perhaps ſeem unſeaſonable to* diſabuſe *ſome* (*otherwiſe*) well-meaning *People, who* led away *and* perverted *by the* Noiſe *of a few* Ignorant *and* Comical Buffoons (*whoſe* Malevolence *or* Impertinencies *entitle them to nothing that is truly* Great *and* Venerable) *are, with an* Inſolence *ſuitable to their* Underſtanding, *ſtill crying out, and asking,* What have the Society done?

NOW, as nothing leſs than Miracles (*and unleſs* God *ſhould every Day* repeat *them at the* Call *of theſe* Extravagants) *will* convince *ſome Perſons of the moſt* Rational *and* Divine Truths (*already ſo often and extraordinarily eſtabliſhed*) *ſo, nor will any thing* ſatisfy *theſe* unreaſonable *Men, but the Production of the* Philoſopher's-Stone, *and* Great Elixir; *which yet were they* Poſſeſſors *of, they would* conſume *upon their* Luxury *and* Vanity.

IT is not therefore to gratify theſe magnificent Fops, *whoſe* Talents *reach but to the adjuſting of their* Perukes, *courting a* Miſs, *or, at the fartheſt, writing a ſmutty or ſcurrilous* Libel (*which they would have to paſs for* genuine *Wit*) *that I* concern *myſelf in theſe* Papers; *but, as well in* Honour *of our* Royal Founder, *as the* Nation, *to* aſſert *what of other* Countries *has been ſurreptitiouſly* arrogated, *and by which they not only value themſelves* abroad, *but* (*prevailing on the Modeſty of that Induſtrious* Aſſembly) *ſeek the* Deference *of* thoſe, *who whilſt it remains ſtill* ſilent, *do not ſo clearly diſcern this glorious* Plumage *to be purely* aſcititious, *and not a* Feather *of their own.* — *But ſtill,* What have they done?

THOSE who perfectly comprehend the Scope *and* End *of that Noble* Inſtitution, *which is to* improve Natural Knowledge, *and enlarge the* Empire *of* Operative Philoſophy, *not by an* Abolition *of the* Old, *but by the* Real Effects *of the* Experimental; Collecting, Examining, *and* Improving *their ſcatter'd* Phænomena, *to eſtabliſh even the* Received Methods *and* Principles *of the* Schools (*as far as were conſiſtent with* Truth *and* Matter *of* Fact) *thought it long enough, that the World had been* impoſed *upon by that* National *and* Formal *Way of delivering divers* Syſtems *and* Bodies *of* Philoſophy (*falſly ſo call'd*) *beyond which there was no more* Country *to diſcover; which being brought to the* Teſt *and* Trial, *vapours all away in* Fume *and empty* Sound.

THIS

THIS Structure *then being thus* ruinous *and* crazy, *'tis obvious what they were to do, even the same which skilful* Architects *do every Day before us*; *by* pulling down *the decayed and sinking Wall to erect a* better, *and more* substantial *in its place: They not only take down the* old, *reject the useless and decayed*; *but sever such* Materials *as are* solid, *and will serve again*; *bring* new ones *in, prepare and frame a* Model *suitable to so* magnificent *a* Design: *This* Solomon *did in order to the* Building *of the* Material Temple; *and* this *is here to be pursued in the* Intellectual: *Nay, here was abundance of* Rubbish *to be clear'd, that the* Area *might be free*; *and then was the* Foundation *to be deeply searched, the* Materials *accurately* examined, squared, *and* adjusted, *before it could be laid: Nor was this the* Labour *of a* Few; *less than a much longer Time, more Cost and Encouragement than any which the* Society *has yet met withal, could in reason be sufficient effectually to go through so chargeable a Work, and highly necessary.*

A long Time it was they had been surveying the Decays *of what was ready now to drop in pieces, whatever Shew the Outside made with a Noise of* Elements *and* Qualities, occult *and* evident; *Abhorrence of* Vacuum, Sympathies, Antipathies; substantial Forms, *and* prime Matter *courting* Form; Epicycles, Ptolemean Hypotheses, *magisterial* Definitions, *peremptory* Maxims, speculative *and* positive Doctrines, *and* Alti-sonant Phrases, *with a thousand other* precarious *and unintelligible* Notions, *&c. all which they have been turning over, to see if they could find any Thing of* sincere *and* useful *among this* pedantick Rubbish, *but all in* vain; *here was nothing* material, *nothing of Moment* mathematical, *or* mechanical, *and which had not been miserably* sophisticated, *on which to lay the Stress*; *nothing in a manner whereby any farther* Progress *could be made, for the* raising *and* ennobling *the* Dignity *of* Mankind *in the* sublimest Operations *of the* Rational Faculty, *by* clearing *the* Obscurities, *and* healing *the* Defects *of most of the* Physiological Hypotheses, *repugnant, as they hitherto seemed to be, to the* Principles *of real* Knowledge *and* Experience.

NOW, although it neither were their Hopes, *or in their Prospect to* consummate *a* Design *requiring so* mighty Aids (*environ'd as they have been with these Prejudices*) *yet have they not at all* desisted *from the* Enterprize; *but rather than so Noble and Illustrious an* Undertaking *should not proceed for want of some generous and industrious* Spirits *to promote the* Work, *they have* themselves *submitted to those mean* Employments, *of* digging *in the very* Quarry; *yea, even of making* Brick *where there was no* Straw, *but what they gleaned, and lay dispersed up*

and down : Nor did they think their Pains yet ill-beſtow'd, *if through the aſſiduous* Labour, *and a* Train *of continual* Experiments, *they might at laſt furniſh, and leave ſolid and uncorrupt* Materials *to a* ſucceeding, *and more* grateful Age, *for the* building up *a* Body *of* real *and* ſubſtantial Philoſophy, *which ſhould never* ſuccumb *to* Time, *but with the* Ruins *of* Nature, *and the* World *itſelf.*

IN order to this, *how many, and almoſt* innumerable *have been their* Trials *and* Experiments, *through the large and ample Field both of* Art *and* Nature? *We call our* Journals, Regiſters, Correſpondence, *and* Tranſactions, *to witneſs ; and may with Modeſty provoke all our* Syſtematical Methodiſts, Natural Hiſtories, *and* Pretenders *hitherto extant from the* Beginning *of* Letters *to this* Period, *to ſhew us ſo* ample, *ſo* worthy, *and ſo* uſeful *a Collection. 'Tis a* Fatality *and an* Injury *to be deplored, that thoſe who give us* hard Words, *will not firſt vouchſafe* impartially *to* examine *theſe* Particulars; *ſince all* ingenuous Spirits *could not but be abundantly* ſatisfied, *that this* Illuſtrious Aſſembly *has not met ſo many* Years *purely for* Speculation *only ; though I take even* that *to be no ignoble* Culture *of the* Mind, *or Time miſpent, for Perſons who have ſo few* Friends *and ſlender* Obligations *to thoſe who ſhould* patronize *and* encourage *them : But they have aimed at* greater Things, *and* greater Things *produced, namely, by* emancipating, *and freeing themſelves from the* Tyranny *of* Opinion, deluſory *and fallacious Shews, to receive nothing upon* Truſt, *but bring it to the* Lydian Touch, *make it paſs the* Fire, *the* Anvil, *and the* File, *till it come forth perfectly* repurged, *and of Conſiſtence. They are not haſty in* concluding *from a* ſingle, *or* incompetent *Number of* Experiments, *to pronounce the* Ecſtatic Heureca, *and offer* Hecatombs ; *but, after the moſt diligent* Scrutiny, *and by degrees, and wary* Inductions honeſtly *and* faithfully *made, to* record *the* Truth, *and Event of* Trials, *and tranſmit them to* Poſterity. *They reſort not immediately to* general Propoſitions, *upon every* ſpecious Appearance ; *but ſtay for* Light, *and Information from* Particulars, *and make Report* de Facto, *and as* Senſe *informs them. They reject no* Sect *of* Philoſophers, *no* mechanick *Helps,* except *no* Perſons *of Men ; but chearfully embracing* all, *cull out of* all, *and alone* retain *what abides the* Teſt ; *that from a plentiful and well-furniſh'd* Magazine *of true* Experiments, *they may in time advance to ſolemn and eſtabliſhed* Axioms, General Rules *and* Maxims; *and a* Structure *may indeed lift up its Head, ſuch as may ſtand the Shock of* Time, *and render a ſolid Account of the* Phænomena, *and* Effects *of* Nature, *the* aſpectable Works of God, *and their* Combinations; *ſo as by* Cauſes *and* Effects, certain

tain *and* uſeful *Conſequences may be deduced. Therefore they do not fill their* Papers *with* Tranſcripts *out of* Rhapſodiſts, Mountebanks, *and Compilers of* Receipts *and* Secrets, *to the Loſs of Oil and Labour*; *but, as it were,* eviſcerating *Nature, diſcloſing the* Reſſorts, *and Springs of* Motion, *have* collected *innumerable* Experiments, Hiſtories, *and* Diſcourſes; *and brought in* Specimens *for the Improvement of* Aſtronomy, Geography, Navigation, Opticks; *all the Parts of* Agriculture, *the* Garden *and the* Foreſt; Anatomy *of* Plants, *and* Animals, Mines *and* Oars; Meaſures *and* Equations *of* Time *by accurate* Pendulums, *and other Motions*, Hydro- *and* Hygroſtaticks, *divers* Engines, Powers *and* Automata, *with innumerable more* luciferous *Particulars, ſubſervient to human Life, of which Dr.* Glanvil *has given an ample aud ingenious* Account *in his Learned Eſſay: And* ſince *in the* Poſthumous *Works of Dr.* Hooke, *lately publiſh'd by the moſt obliging Mr.* Waller, *already mention'd.*

THIS is (Reader) *what they have done*; *and they are but* Part *of the* Materials *which the* Society *have hitherto* amaſſed, *and prepared for this great and* illuſtrious Work; *not to paſs over an Infinity of* ſolitary *and looſe* Experiments *ſubſidiary to it, gathered at no ſmall Pains and Coſt: For ſo have they hitherto born the* Burden and Heat of the Day alone; Sapping *and* Mining *to lay the* Foundation *deep, and raiſe a* Superſtructure *to be one Day perfected, by the joint* Endeavours *of thoſe who ſhall in a* kinder *Age have little elſe to do, but the* putting *and* cementing *of the* Parts *together, which to* collect *and fit, have coſt them ſo much Solicitude and Care.* Solomon *indeed built the glorious* Temple; *but 'twas* David *provided the* Materials: *Did Men in thoſe Days inſolently ask,* What he had done, *in all the Time of that tedious Preparation? I beſeech you, what* Obligation *has the* Royal Society *to render an* Account *of their Proceedings to* any *who are not of the* Body, *and that carry on the* Work *at their own* Expence *amidſt ſo many Contradictions? It is an* Evil Spirit, *and an* Evil Age, *which having ſadly* debauch'd *the* Minds *of Men, ſeeks with Induſtry to blaſt and undermine all* Attempts *and Endeavours that ſignify to the Illuſtration of* Truth, *the Diſcovery of* Impoſtors, *and ſhake their ſandy Foundations.*

THOSE who come (*ſays the Noble* Verulam) to enquire after *Knowledge*, with a Mind to *ſcorn*, ſhall be ſure to find Matter for their *Humour*; but none for their *Inſtruction: Would* Men bring Light of *Invention*, and not Fire-brands of *Contradiction*, Knowledge would infinitely increaſe. *But theſe are the* Sanballats *and* Horonites *who diſturb our Men upon the Wall: But,* let us riſe up and build, *and be no more diſcouraged. 'Tis impoſſible* Neh. ii. 19.

possible to conceive, how so honest, and worthy a Design *should have found so few* Promoters, *and cold a Welcome in a* Nation *whose* Eyes *are so wide open: We see how greedily the* French, *and other* Strangers *embrace and cultivate the* Design: *What sumptuous* Buildings, *well furnish'd* Observatories, *ample* Appointments, Salaries, *and* Accommodations, *they have erected to carry on the Work; whilst we live* precariously, *and spin the* Web *out of our own* Bowels. *Indeed, we have had the Honour to be the* first *who led the* Way, *given the* Ferment, *which like a* Train *has taken* Fire, *and warm'd the* Regions *all about us.* This Glory, doubtless, shall none take from us: *But, whilst they flourish so* Abroad, *we want the* Spirit *should diffuse it here at* Home, *and give Progress to so hopeful a* Beginning: *But, as we said, the* Enemy *of* Mankind *has done us this Despite; it is his Interest to impeach (in any sort) whate'er opposes his* Dominion; *which is to lead, and settle Men in* Errors *as well in* Arts *and* Natural Knowledge, *as in* Religion; *and therefore would be glad, the World should still be* groping *after* both. *'Tis* he *that sets the* Buffoons, *and empty* Sycophants, *to turn all that's* Great *and* Virtuous *into* Raillery *and Derision: 'Tis therefore to encounter* these,
Neh. iv. 17. *that like those resolute* Builders, *whilst we employ one Hand in the Work,* we, *with the* other, *are obliged to hold our* Weapon, *till some bold and* gallant Genius *deliver us, and raise the Siege. How gloriously would such a* Benefactor *shine! What a* Constellation *would he make! How great a* Name *establish! For mine own part* (religiously *I* profess it) *were I not a* Person, *who (whilst I stood expecting when others more worthy, and able than myself, should have snatch'd the Opportunity of* signalizing *a Work worthy of* Immortality) *had long since given* Hostages *to* Fortune, *and so put myself out of a Capacity of shewing my* Affection *to a* Design *so glorious; I would not only most chearfully have* contributed *towards the freeing it from the* Straits *it has so long struggled under; but* sacrificed *all my* Secular Interests *in their Service: But, as I said, this is reserved for that gallant* Hero *(whoe'er it be) that truly weighing the Noble and Universal* Consequence *of so high an* Enterprize, *shall at last free it of these* Reproaches; *and either set it above the Reach of* Envy, *or convert it to* Emulation. *This were indeed to consult an honest* Fame, *and to* embalm *the* Memory *of a* greater Name *than any has yet appeared amongst all the* Benefactors *of the* Disputing Sects: *Let it suffice to affirm, that next the* Propagation *of our most* Holy Faith, *and its* Appendants (*nor can his* Majesty *or the* Nation *build their* Fame *on a more* lasting, *a more* glorious Monument; *the Propagation of* Learning, *and* useful Arts, *having always sur-*

viv'd

viv'd the Triumphs *of the proudeſt* Conquerors, *and Spillers of human* Blood) Princes *have been more* renown'd *for their Civility to* Arts *and* Letters, *than to all their* ſanguinary Victories, *ſubduing* Provinces, *and making thoſe brutiſh* Deſolations *in the World, to feed a* ſalvage *and vile* Ambition. *Witneſs you* Great Alexander, *and you the* Ptolemies, Cæſars, Charlemain, Francis *the Firſt*; *the* Coſimo's, Frederick's, Alphonſus's, *and the reſt of* Learned Princes: *Since when all the* Pomp *and Noiſe is ended*; *they are thoſe* little Things *in* black (*whom now in ſcorn they term* Philoſophers *and* Fops) *to whom they muſt be obliged, for making their* Names *outlaſt the* Pyramids, *whoſe* Founders *are as unknown as the Heads of* Nile; *becauſe they either deſerved no* Memory *for their* Virtues, *or had none to tranſmit them, or their* Actions *to* Poſterity.

IS not our Royal Founder *already* panegyrized *by all the* Univerſities, Academiſts, Learned Perſons, *divers* Princes Ambaſſadors, *and* Illuſtrious *Men from* abroad? *Witneſs beſides, the many accurate* Treatiſes *and* Volumes *of the moſt* curious *and* uſeful *Subjects*, Medicinal, Mathematical, *and* Mechanical, *dedicated to his* Majeſty *as* Founder; *to its* Preſident, *and to the* Society, *by the greateſt* Wits, *and moſt profoundly knowing of the* European *World, celebrating their* Inſtitution *and* Proceedings: *Witneſs, the daily Submiſſions and ſolemn* Appeals *of the moſt Learned* Strangers *to its* Suffrages, *as to the moſt able, candid, and impartial* Judges: *Witneſs, the* Letters *and* Correſpondencies *from moſt Parts of the* habitable Earth, Eaſt *and* Weſt-Indies, *and almoſt from* Pole *to* Pole; *beſides what they have received from the very Mouths of divers* Profeſſors, Publick Miniſters, *great* Travellers, Noblemen, *and Perſons of higheſt Quality*; *who have not only frequented the* Aſſembly, *but deſired to be* incorporated *and* aſcribed *into their* Number; *ſo little has his* Majeſty, *or the* Kingdom *been diminiſhed in their Reputation, by the* Royal Society, *to the Reproach of our ſordid* Adverſaries: *Never had the* Republick *of* Letters *ſo Learned and Univerſal a* Correſpondence *as has been procured and promoted by this* Society *alone*; *as not only the caſual* Tranſactions *of ſeveral Years* (*filled with* Inſtances *of the moſt curious and uſeful* Obſervations) *make appear*; *but* (*as I ſaid*) *the many* Nuncupatory Epiſtles *to be ſeen in the Fronts of ſo many* Learned Volumes: *There it is you will find* CHARLES II. *placed among the* Heroes *and* Demi-Gods, *for his* Patrociny *and* Protection: *There you will ſee the numerous* Congratulations *of the moſt Learned* Foreigners, *celebrating the Happineſs of their* Inſtitution; *and that whilſt other* Nations *are ſtill* benighted *under the dusky* Cloud, *ſuch a refulgent Beam ſhould give Day to this* bleſſed Iſle: *And certainly, it is not to be ſuppoſed that* all *theſe* Learned Perſons, *of ſo many, and divers* Intereſts, *as well as* Coun-

tries, *ſhould* ſpeak, *and* write *thus out of* Flattery, *much leſs of* Ignorance; *being Men of the moſt refined* Univerſal Knowledge, *as well as* Ingenuity: *But I ſhould never* end, *were I to purſue this fruitful* Topick. *I have but one Word more to add, to conciliate the* Favour *and Eſteem of our own* Univerſities, *to an* Aſſembly *of* Gentlemen, *who* from them *acknowledge to have derived all their* Abilities *for theſe laudable Undertakings*; *and what above all is moſt* ſhining *in them of moſt* Chriſtian, Moral, *and otherwiſe conſpicuous, as from the* Source *and* Fountain, *to which, on all Occaſions, they are not only ready to pay the* Tribute *and* Obſequiouſneſs *of* humble Servants, *but of* Sons, *and dutiful* Alumni. *There is nothing verily which they more deſire, than a fair and mutual* Correſpondence *between ſo near* Relations, *and that they may be perpetually* flouriſhing *and* fruitful *in bringing forth* (*as ſtill they do*) *Supplies to* Church *and* State *in all its great Capacities*: * *Finally, that they would regard the* Royal Society *as a* Colony *of their own* planting, *and* augure *it* Succeſs. *And if in theſe* Labours, *and arduous* Attempts, *ſeveral* Inventions *of preſent Uſe and Service to* Mankind (*either detecting* Errors, *illuſtrating and aſſerting* Truths, *or propagating* Knowledge *in* natural Things, *and the viſible* Works *of* God) *have been diſcover'd, as they* envy *not the* communicating *them to the* World; *ſo ſhould they be* wanting *to the* Society, *and to the* Honour *of divers* Learned *and* Ingenious Perſons (*who are the* Soul *and* Body *of it*) *not to vindicate them from the ambitious* Plagiary, *the Inſults of* Scoffers *and injurious Men: Certainly, Perſons of right* Noble *and ſubacted* Principles, *that were* Lovers *of their* Country, *ſhould be otherwiſe affected*; *and rather ſtrive to* encourage, *and promote Endeavours tending to ſo* generous *a* Deſign, *than decry it*; *eſpecially, when it coſts them nothing but their* Civility *to ſo many* obliging Perſons, *though they ſhould hitherto have entertain'd them but with ſome innocent* Diverſions. *To conclude, we* envy *none their* Dues; *nay, we gratefully* acknowledge *any* Light *which we receive either from* Home, *or from* Abroad: *We* celebrate *and* record *their* Names *amongſt our* Benefactors; *recommend them to the* Publick, *and what we thus* freely give, *we hope as* freely *to* receive.

THUS have I endeavoured to vindicate *the* Royal Society *from ſome* Aſperſions *and* Encroachments *it hitherto has ſuffered*; *and ſhewed under what* Weights *and* Preſſure *this* Palm *does ſtill emerge*:

* Since this *Epiſtle* was firſt written and publiſhed, the *Univerſity* of *Oxford* have inſtituted, and erected a *Society* for the promoting of *Natural* and *Experimental Knowledge*, in conſort with the *Royal Society*, with which they keep a mutual Correſpondence: This I mention, for that ſome *Malevolents* had ſo far endeavour'd to poſſeſs divers Members of the *Univerſity*; as if the *Society* deſign'd nothing leſs than the undermining of that, and other illuſtrious *Academies*, and which indeed ſo far prevail'd, as to breed a real Jealouſy for ſome conſiderable Time: But as this was never in the Thoughts of the *Society* (which had ever the *Univerſities* in greateſt Veneration) ſo the Innocency and Uſefulneſs of its Inſtitution has at length diſabus'd them, vindicated their Proceedings, diſſipated all Surmiſes, and, in fine, produced an ingenuous, friendly, and candid Union and Correſponcence between them.

And

And if for all this I fall ſhort of my Attempt, *I ſhall yet have this* Satisfaction, *that tho' I derive no* Glory *from my own* Abilities (*ſenſible of my great* Defects) *I ſhall yet* deſerve *their* Pardon *for my* Zeal *to its* Proſperity.

EPICTETUS, &c.

Φιλοσοφίας ἐπιθυμεῖς; προσκαρτέρει ἀυτόθεν, &c.

Wouldſt thou be a Philoſopher? *Prepare thyſelf for* Scoffs: *What, you are ſetting up for a* Virtuoſo *now? Why ſo* proud *I pray? Well, be not thou proud for all this; but ſo perſiſt in what ſeems* beſt *and* laudable; *as if* God *himſelf had placed thee there; and* remember, *that ſo long as thou* remain'ſt *in that* State *and* Reſolution, *thy* Reproachers *will in time* admire *thee: But if once, through* Inconſtancy, *thou* give out *and* flinch, διπλῶν προσλήψῃ καταγέλωτα, *thou* deſerveſt *to be doubly* laugh'd *at.*

Lord VERULAM, Inſtaur. Scient.

Some Men (*like* Lucian *in* Religion) *ſeek by their* Wit, *to* traduce *and* expoſe uſeful Things; *becauſe to arrive at them, they converſe with* mean Experiments: *But thoſe who* deſpiſe *to be* employ'd *in* ordinary *and* common Matters, *never arrive to* ſolid Perfection *in* Experimental Knowledge.

THE Changes *and* Alterations *in the ſeveral* Chapters *and Parts throughout this* Diſcourſe, *with the* Additions *and* Improvements, *have often obliged me to alter the* Method, *and indeed to make it almoſt a* New Work.

J. EVELYN.

ADVER-

ADVERTISEMENT.

THAT I have frequently inſerted divers *Hiſtorical* and other Paſſages, *appoſite*, and agreeable to the *Subject* (abſtaining from a Number more which I might have added) let it be *remember'd*, that I did not altogether compile this *Work* for the Sake of our ordinary *Ruſticks* (meer *Foreſters* and *Woodmen*) but for the more *Ingenious*; the Benefit and Diverſion of *Gentlemen*, and Perſons of *Quality*, who often refreſh themſelves in theſe agreeable *Toils* of *Planting*, and the *Garden*: For the reſt, I may perhaps in ſome Places have made uſe of (here and there) a *Word* not as yet ſo familiar to every *Reader*; but *none*, that I know of, which are not ſufficiently *explained* by the *Context* and Diſcourſe. That this may yet be no *Prejudice* to the *meaner Capacities*, let them *read* for

Ablaqueation, laying bare the *Roots*.
Amputation, cutting quite off.
Arborator, Pruner, or one that has Care of the *Trees*.
Avenue, the principal *Walk* to the *Front* of the *Houſe* or *Seat*.
Bulbs, round, or *Onion-ſhap'd* Roots.
Calcine, burn to Aſhes.
Compoſt, Dung.
Conſervatory, Green-houſe to keep *choice Plants*, &c. in.
Contr' eſpaliere, a Paliſade, or *Pole-hedge*.
Coronary Garden, *Flower*-Garden.
Culinary, belonging to the *Kitchen*, *Roots*, *Salading*, &c.
Culture, Dreſſing.
Decorticate, to ſtrip off the *Bark*.
Emuſcation, cleanſing it of the *Moſs*.
Eſculent, Roots, Salads, &c. fit to eat.
Eſpalieres, Wall-fruit Trees.
Exoticks, outlandiſh, rare, and choice.
Fermentation, working.
Fibrous, ſtringy.
Frondation, ſtripping of *Leaves* and *Boughs*.
Heterogeneous, repugnant.
Homogeneous, agreeable.
Hyemation, Protection in *Winter*.

Ichnography,

Ichnography, Ground-Plot.
Inoculation, Budding.
Inciſion, Graffing.
Inſolation, expoſing to the *Sun*.
Interlucation, thinning and disbranching of a Wood.
Irrigation, Watering.
Laboratory, Still-houſe.
Letation, Dung.
Lixivium, Lee.
Mural, belonging to the Wall.
Olitory, *Acetary*, *Salads*, &c. belonging to the *Kitchen-Garden*.
Paliſade, Pole-hedge.
Parterre, Flower-Garden, or *Knots*.
Perennial, continuing all the Year.
Quincunx, Trees ſet like the *Cinque-point* of a *Dye*.
Rectify, Re-diſtil.
Seminary, Nurſery.
Stercoration, Dunging.
S.S.S. *Stratum ſuper Stratum*, one Bed, or Layer upon another.
Tonſile, that which may be ſhorne, or clipp'd.
Topiary-Works, the *Clipping*, *Cutting*, and *Forming* of *Hedges*, &c. into *Figures* and Works.
Vernal, belonging to the *Spring*, &c.
The reſt are *obvious*.

BOOKS published by the AUTHOR of this Discourse.

1. THE *French Gardener. Twelves.* With Mr. *Rose*'s Vineyard.
2. *Fumi-fugium:* Or, A *Prophetick Invective* against the *Smoke* of *London. Quarto.*
3. *Silva:* Or, A *Discourse* of *Forest-Trees*, &c. *Folio.*
4. *Kalendarium Hortense*, both in *Folio* and *Octavo.*
5. *Sculptura:* Or, The *History* of *Chalcography* and *Engraving* in *Copper*, the *Original* and *Progress* of that *Art*, &c. *Octavo.*
6. The *Parallel* of *Architecture*, being an Account of *Ten* famous *Architects*, with a *Discourse* of the *Terms*, and a *Treatise* of *Statues. Folio.*
7. The *Idea* of the *Perfection* of *Painting. Octavo.*
8. *Navigation* and *Commerce*, their *Original* and *Progress. Octavo.*
9. *Publick Employment* and an *Active Life*, preferr'd to *Solitude* and its *Appanages*, &c. *Octavo.*
10. *Terra:* Or, A *Philosophical* Discourse of *Earth*, both in *Folio* and *Octavo.*
11. *Numismata:* A *Discourse* of *Medals.* To which is added, A *Digression* concerning *Physiognomy. Folio.*
12. *Acetaria:* Or, A *Discourse* of *Sallets.*

Amico

Amico chariſſimo *Johanni Evelyno*, Armigero, è Societate Regali *Londini*. *J. Beale*, S. P. D. In Silvam.

FARE age quid cauſæ eſt quod tu Silveſtria *pangis*,
Inter Silvanos, *capripedeſque* Deos?
Inter Hamadryadas *lætus*, Dryadaſque *pudicas*,
Cum tua Cyrrhæis *ſit* Chelys *apta modis*!
Scilicet hoc cecinit numeroſus Horatius *olim*,
Scriptorum Silvam *quod* Chorus omnis amat.
Eſt locus ille Sacer Muſis, *&* Apolline *dignus*,
Prima dedit ſummo Templa *ſacranda* Jovi.
Hinc quoque nunc Pontem Pontus *non reſpuit ingens*,
Stringitur Oceanus, *corripiturque Salum*.
Hinc novus Heſperiis *emerſit mundus in oris*, Gen. i. 2.
Effuditque auri flumina larga probi.
Hinc exundavit diſtento Copia cornu,
Qualem & Amaltheæ *non habuere ſinus*.
Silva *tibi curæ eſt*, *grata &* Pomona *refundit*
Auriferum, *roſeum*, *purpureumque* nemus.
Illa famemque ſitimque abigens expirat odores,
Quales nec Medus, *nec tibi mittit* Arabs.
Ambroſiam præbent modo cocta Cydonia, *Tantum*
Comprime, *Nectareo* Poma *liquore fluunt*.
Progredere, O Sæcli Cultor *memorande futuri*,
Felix Horticolam *ſic imitere* Deum.

Nobiliſſimo

Nobiliſſimo Viro *Johanni Evelyno*, Regalis *Soc. Socio Digniſſimo.*

AUSUS laudato qui quondam reddere verſu,
Æternum & tentare melos, conamine magno
Lucretî *nomenque ſuum donaverat ævo:*
Ille leves atomos audaci pangere muſa
Aggreditur, variis & ſemina cæca figuris,
Naturæque vias: non quæ Schola garrula jactat,
Non quæ rixanti fert barbara turba Lyceo:
Ingentes animi ſenſus, & pondera rerum,
Grandior expreſſit Genius, nec ſcripta minora
Ev'linum *decuiſſe ſolent.*
Tuque per obſcuros (*victor* Boyleæ) *receſſus,*
Libro de coloribus. *Naturæ meditaris opus, qua luce colores*
Percipimus, quali magnus ferit organa motu
Carteſius, *quali volitant primordia plexu*
Ex atomis, Gaſſende, *tuis; ſimulacraque rerum*
Diffugiunt tacito vaſtum per inane meatu:
Mutato varios mentitur lana colores
Lumine; dum tales ardens habet ipſe figuras
Purpura, Sidonioque aliæ tinxere veneno:
Materiam aſſiduo variatam, ut Protea, *motu*
De origine formarum. *Concipis, hinc formæ patuit naſcentis origo,*
Hinc hominum ſpecies, & vaſta machina cæli:
Ipſe creare Deus, ſoluſque oſtendere mundum
Boylæus *potuit, ſed nunc favet æmula virtus,*
(*Magne* Eveline) *tibi, & generoſos excitat ignes:*
Pergite, Scipiadæ duo, *qui vel mille* Marones
Obruitis, longo & meriti laſſatis honore.
Tu vero dilecte nimis! qui ſtemmate ab alto
Patricios deducis avos, ceraſque parentum
De *Wotton* in agro *Surrienſi.* Wottonicæ *de ſtirpe domus; virtutibus æquas*
Nunc generis monumenta tui, poſt tædia Ponti
Innumeraſque errore vias, quid Sequana *fallax,*
Hoſtilis quæ Rhenus *agit, quæ* Tibris, & Iſter,

Nota

Nota tibi : triplici quid perfida Roma *corona*
Geſſit, & Adriaca Venetus *deliberat arce,*
Qualiaque Odryſias *vexârunt prælia lunas.*
Hic qui naturæ interpres & ſedulus artis
Cultor, qui mores hominum cognovit, & urbes :
Dum Phœbo *comes ire parat, mentemque capacem*
Vidit uterque polus, nec Graiuin *cana vetuſtas*
Hunc latuit, veterum nunc priſca numiſmata regum
Eruit, & Latias *per myſtica templa ruinas :*
Æſtimat ille forum, & vaſti fundamina Circi,
Cumque ruinoſo Capitolia *priſca Theatro,*
Et Dominos colles altæque palatia Romæ :
Regales notat inde domos, ut mole ſuperba
Surgat apex, molles quæ tecta imitantur Ionas,
Qualia Romulea, Gothica *quæ marmora dextra,*
Quicquid Tuſcus *habet, mira panduntur ab arte.*
O famæ patriæque ſacer ! vel diruta chartis
Vivet Roma *tuis ; te vindice, læta* Corinthus
Stabit adhuc, magno nequicquam inviſa Metello.
Nunc quoque Ruris *opes dulceſque ante omnia curas*
Pandis ovans, triſtes maneat quæ cura Decembres,
Pleiades *hæc* Hyadeſque *jubent, hæc læta* Bootes
Semina mandat humi, ardenti hæc Sirius *agro*
Cœpit ut æſtiva ſegetes torrere favilla,
Hoc Maii *vernantis opus, dum florea ſerta*
Invitant Dominas ruris, dum vere tepenti
Ridet ager, renovatque ſuos Narciſſus *amores.*
Haud aliter victrix divinam Æneida *vates*
Luſit opus, ſimul & gracili modulatus avena,
Fata decent majora tuos, Eveline, *triumphos,*
Æternum renovatur honos, te nulla vetuſtas
Obruet, atque tua ſervanda volumina cedro
Durent, & meritam cingat tibi laurea frontem
Qui vitam Silvis *donaſti &* Floribus *ævum.*

Conſule librum Auctoris de Architectura.

R. BOHUN.

ΈΙΣ ΤΗΝ ΤΟΥ ΠΑΤΡΟΣ

ΔΕΝΔΡΟΛΟΓΙΑΝ.

Ὑμνήσω φρονίμοιο πατρὸς μελέεσσιν ἐπαίνους,
Ὑμνήσω ἐπέεσσιν ἀριστεύοντα γεωργῶν·
Οὐρανίην ταναῆς ἀρετὴν δρυὸς αὐτὸς ἔγραψεν,
Καὶ ποταπῶν γενεὴν δένδρων κατὰ δάσκιον ὕλην·
Ἀθανάτων κύδιστος ἐὴ νεφεληγερέτα Ζεὺς,
Ἔσχεν δὴ δένδροιο φίλαις πραπίδεσσιν ἔελδωρ,
Φύλλοις τ' ἀμβροσίοις θαλερᾶς δρυὸς ἐστεφάνωτο;
Ἀγγλιακῶν ὃς ἄριστος ἐὴ θεοείκελος ἀνὴρ,
Ἱστορίην δένδρων τέλεσεν φρέσι κυδάλιμοισι,
Ὑλογενὴς, κηπουρὸς, ὑπείροχος, ὃς μέγ' ὄνειαρ
Ἀνδράσιν ἐσσομένοις κατὰ γαίην πουλυβότειραν,
Νηυσί τε πεντοπόροισι βαρυγδούποιο θαλάσσης.

Jo. Evelyn, Fil.

The

The GARDEN.

To J. Evelyn, *Esquire.*

I NEVER had any other Desire so strong, and so like to Covetousness, as that one which I have had always, that I might be Master at last of a small House and large Garden, with very moderate Conveniencies joined to them, and there dedicate the Remainder of my Life only to the Culture of them, and Study of Nature,

And there (with no Design beyond my Wall) whole and entire to lie,
In no unactive Ease, and no inglorious Poverty;

Or, as *Virgil* has said, shorter and better for me, that I might there *Studiis florere ignobilis otî* (though I could wish that he had rather said, *Nobilis otii*, when he spoke of his own:) But several Accidents of my ill Fortune have disappointed me hitherto, and do still of that Felicity; for though I have made the first and hardest Step to it, by abandoning all Ambitions and Hopes in this World, and by retiring from the Noise of all Business, and almost Company; yet I stick still in the Inn of a hired House and Garden, among Weeds and Rubbish; and without that pleasantest Work of human Industry, the Improvement of something which we call (not very properly, but yet we call) our own. I am gone out from *Sodom*, but I am not yet arrived at my little *Zoar: O let me escape thither* (*is it not a little one?*) *and my Soul shall live.* I do not look back yet; but I have been forced to stop, and make too many Halts. You may wonder, Sir, (for this seems a little too extravagant and pindarical for *Prose*) what I mean by all this *Preface*; it is to let you know, that though I have miss'd, like a Chymist, my great End, yet I account my Affections and Endeavours well rewarded by something that I have met with by the bye; which is, that they have procured to me some Part in your Kindness and Esteem; and thereby the Honour of having my Name so advantagiously recommended to Posterity, by the *Epistle* you are pleased to prefix to the *most useful Book* that has been written in that Kind, and which is to last as long as Months and Years.

Among many other *Arts* and *Excellencies* which you enjoy, I am glad to find this Favourite of mine the most predominant, that you choose this for your Wife, though you have hundreds of other Arts for your Concubines; though you know them, and beget Sons upon them all (to which you are rich enough to allow great Legacies) yet the Issue of this seems to be design'd by you to the Main of the Estate; you have taken most Pleasure in it, and bestow'd most Charges upon its Education; and I doubt not to see that Book, which you are pleased to promise to the World, and of which you have given us a large Earnest in your Kalendar, as accomplish'd as any Thing can be expected from an *extraordinary Application*, and no ordinary Expences, and a long Experience. I know no Body that possesses more private Happiness than

you do in your Garden; and yet no Man who makes his Happineſs more publick, by a free Communication of the Art and Knowledge of it to others. All that I myſelf am able yet to do, is only to recommend to Mankind the Search of that Felicity, which you inſtruct them how to find and to enjoy.

I.

Happy art thou whom God does bleſs
With the full Choice of thine own Happineſs;
And happier yet, becauſe thou'rt bleſt
With Prudence how to chooſe the beſt:
In Books and Gardens thou haſt plac'd aright
(Things well which thou doſt underſtand,
And both doſt make with thy laborious Hand)
Thy noble innocent Delight:
And in thy virtuous Wife, where thou again doſt meet
Both Pleaſures more refin'd and ſweet;
The faireſt Garden in her Looks,
And in her Mind the wiſeſt Books.
Oh! who would change theſe ſoft, yet ſolid Joys,
For empty Shows and ſenſeleſs Noiſe;
And all which rank Ambition breeds,
Which ſeem ſuch beauteous Flowers, and are ſuch pois'nous Weeds!

II.

When God did Man to his own Likeneſs make,
As much as Clay, though of the pureſt Kind,
By the great Potter's Art refin'd,
Could the Divine Impreſſion take:
He thought it fit to place him, where
A kind of Heav'n too did appear,
As far as Earth could ſuch a Likeneſs bear:
That Man no Happineſs might want,
Which Earth to her firſt Maſter could afford;
He did a Garden for him plant,
By the quick Hand of his Omnipotent Word:
As the chief Help and Joy of Human Life,
He gave him the firſt Gift; firſt, ev'n before a Wife.

III.

For God, the univerſal Architect,
'T had been as eaſy to erect
A Louvre, or Eſcurial, or a Tower,
That might with Heav'n Communication hold,
As *Babel* vainly thought to do of Old:
He wanted not the Skill or Power;
In the World's Fabrick thoſe were ſhown,
And the Materials were all his own.
But well He knew what Place would beſt agree
With Innocence, and with Felicity:
And we elſewhere ſtill ſeek for them in vain,
If any Part of either yet remain:
If any Part of either we expect,
This may our Judgment in the Search direct;
God the firſt Garden made, and the firſt City, *Cain*.

IV.

O bleſſed Shades! O gentle cool Retreat
From all th' immoderate Heat
In which the frantick World does burn and ſweat;
This does the Lion-Star, Ambition's Rage,
This Avarice, the Dog-Star's Thirſt aſſwage;
Every where elſe their fatal Power we ſee,
They make and rule Man's wretched Deſtiny:
They neither ſet nor diſappear,
But tyrannize o'er all the Year;
Whilſt we ne'er feel their Flame or Influence here.
The Birds that dance from Bough to Bough,
And ſing Above in every Tree,
Are not from Fears and Cares more free,
Than we who lie, or walk Below,
And ſhould by Right be Singers too.
What Prince's Choir of Muſick can excel
That which within this Shade does dwell?
To which we nothing pay or give,
They like all other Poets live,
Without Reward or Thanks for their obliging Pains;
'Tis well if they become not Prey:
The whiſtling Winds add their leſs artful Strains,
And a grave Baſe the murmuring Fountains play;
Nature does all this Harmony beſtow,
But to our Plants, Arts Muſick too,
The Pipe, Theorbo, and Guitar we owe;
The Lute itſelf, which once was green and mute:
When *Orpheus* ſtruck th' inſpired Lute,
The Trees danc'd round, and underſtood
By Sympathy the Voice of Wood.

V.

Theſe are the Spells that to kind Sleep invite,
And nothing does within Reſiſtance make,
Which yet we moderately take:
Who wou'd not chooſe to be awake,
While he's encompaſs'd round with ſuch Delight,
To th' Ear, the Noſe, the Touch, the Taſte, and Sight?
When *Venus* wou'd her dear *Aſcanius* keep
A Pris'ner in the downy Bands of Sleep,
She od'rous Herbs and Flowers beneath him ſpread
As the moſt ſoft and ſweeteſt Bed;
Not her own Lap would more have charm'd his Head.
Who, that has Reaſon, and his Smell,
Would not 'mong Roſes and Jaſmin dwell,
Rather than all his Spirits choak
With Exhalations of Dirt and Smoak,
And all th' Uncleanneſs which does drown
In peſtilential Clouds a pop'lous Town?
The Earth itſelf breathes better Perfumes here,
Than all the Female Men or Women there,
Not without Cauſe about them bear.

VI.

When *Epicurus* to the World had taught,
That Pleaſure was the chiefeſt Good,
(And was perhaps i'th' right, if rightly underſtood)
His Life he to his Doctrine brought,
And in a Garden's Shade that ſoveraign Pleaſure ſought.
Whoever a true Epicure would be,
May there find cheap and vertuous Luxury.
Vitellius his Table, which did hold
As many Creatures as the Ark of Old;
That fiſcal Table, to which every Day
All Countries did a conſtant Tribute pay,
Could nothing more delicious afford,
Than Nature's Liberality,
Help'd with a little Art and Induſtry,
Allows the meaneſt Gard'ner's Board.
The wanton Taſte no Fiſh or Fowl can chooſe,
For which the Grape or Melon ſhe would looſe,
Though all th' Inhabitants of Sea and Air
Be liſted in the Glutton's Bill of Fare;
Yet ſtill the Fruits of Earth we ſee
Plac'd the third Story high in all her Luxury.

VII.

But with no Senſe the Garden does comply;
None courts or flatters, as it does the Eye:
When the great *Hebrew* King did almoſt ſtrain
The wond'rous Treaſures of his Wealth and Brain,
His Royal Southern Gueſt to entertain;
Though ſhe on Silver Floors did tread,
With bright *Aſſyrian* Carpets on them ſpread,
To hide the Metal's Poverty:
Though ſhe look'd up to Roofs of Gold,
And nought around her could behold
But Silk and rich Embroidery,
And *Babylonian* Tapiſtry,
And wealthy *Hiram*'s Princely Die:
Though *Ophir*'s Starry Stones met every where her Eye;
Though ſhe herſelf and her gay Hoſt were dreſs'd
With all the ſhining Glories of the Eaſt;
When laviſh Art her coſtly Work had done,
The Honour and the Prize of Bravery
Was by the Garden from the Palace won;
And every Roſe and Lilly there did ſtand
Better attir'd by Nature's Hand:
The Caſe thus judg'd againſt the King we ſee,
By one that would not be ſo rich, though wiſer far than he.

VIII.

Nor does this happy Place only diſpenſe
Such various Pleaſures to the Senſe,
Here Health itſelf does live,
That Salt of Life which does to all a Reliſh give,

Its

Its ſtanding Pleaſure, and intrinſick Wealth,
The Body's Vertue, and the Soul's good Fortune, Health.
The Tree of Life, when it in *Eden* ſtood,
Did its immortal Head to Heaven rear;
It laſted a tall Cedar till the Flood;
Now a ſmall thorny Shrub it does appear;
Nor will it thrive too every where:
It always here is freſheſt ſeen;
'Tis only here an Ever-green.
If through the ſtrong and beauteous Fence
Of Temperance and Innocence,
And wholeſome Labours, and a quiet Mind,
Diſeaſes paſſage find,
They muſt not think here to aſſail
A Land unarmed, or without a Guard;
They muſt fight for it, and diſpute it hard,
Before they can prevail:
Scarce any Plant is growing here
Which againſt Death ſome Weapon does not bear.
Let Cities boaſt, that they provide
For Life the Ornaments of Pride;
But 'tis the Country and the Field,
That furniſh it with Staff and Shield.

IX.

Where does the Wiſdom and the Power Divine
In a more bright and ſweet Reflection ſhine?
Where do we finer Stroaks and Colours ſee
Of the Creator's real Poetry,
Than when we with Attention look
Upon the third Day's Volume of the Book?
If we could open and intend our Eye,
We all like *Moſes* ſhould eſpy
Ev'n in a Buſh the radiant Deity.
But we deſpiſe theſe his inferior Ways,
(Though no leſs full of Miracle and Praiſe)
Upon the Flowers of Heaven we gaze;
The Stars of Earth no Wonder in us raiſe,
Though theſe perhaps do more than they,
The Life of Mankind ſway.
Although no Part of mighty Nature be
More ſtor'd with Beauty, Power, and Myſtery;
Yet, to encourage human Induſtry,
God has ſo order'd, that no other Part
Such Space, and ſuch Dominion leaves for Art.

X.

We no where Art do ſo triumphant ſee,
As when it Grafts or Buds the Tree;
In other Things we count it to excel,
If it a docile Scholar can appear
To Nature, and but imitate her well;
It over-rules, and is her Maſter here.

It imitates her Maker's Power Divine,
And changes her ſometimes, and ſometimes does refine:
It does, like Grace, the fallen Tree reſtore
To its bleſs'd State of Paradiſe before:
Who would not joy to ſee his conquering Hand
O'er all the Vegetable World command?
And the wild Giants of the Wood receive
What Law he's pleas'd to give?
He bids th' ill-natur'd Crab produce
The gentle Apples winy Juice;
The Golden Fruit that worthy is
Of *Galetea*'s Purple Kiſs;
He does the ſavage Hawthorn teach
To bear the Medlar and the Pear;
He bids the ruſtick Plum to rear
A noble Trunk, and be a Peach;
Ev'n *Daphne*'s Coyneſs he does mock,
And weds the Cherry to her Stock,
Though ſhe refus'd *Apollo*'s Suit;
Ev'n ſhe, that Chaſt and Virgin Tree
Now wonders at herſelf, to ſee
That ſhe's a Mother made, and bluſhes in her Fruit.

XI.

Methinks I ſee Great *Diocleſian* walk
In the *Salonian* Gardens noble Shade,
Which by his own Imperial Hands was made:
I ſee him ſmile, methinks, as he does talk
With the Ambaſſadors, who come in vain
T' entice him to a Throne again:
If I, my Friends (ſaid he) ſhould to you ſhow
All the Delights which in theſe Gardens grow;
'Tis likelier much, that you ſhould with me ſtay,
Than 'tis that you ſhould carry me away:
And truſt me not, my Friends, if every Day,
I walk not here with more Delight
Than ever after the moſt happy Fight,
In triumph to the Capitol I rode,
To thank the Gods, and to be thought myſelf almoſt a God.

Chertſea, Aug. 16. 1666.

ABRAHAM COWLEY.

SILVA:

OR, A

DISCOURSE

OF

FOREST-TREES,

AND

The Propagation of TIMBER in His MAJESTY's Dominions, &c.

Tuque ades, inceptumque una decurre laborem,
O decus, ô famæ merito pars maxima noſtræ,
CAROLIDE, pelagoque volans da vela petenti:
Da facilem curſum, atque audacibus annue cœptis:
Ignaroſque viæ mecum miſeratus agreſtes
Ingredere, & votis jam nunc aſſueſce vocari.

The INTRODUCTION.

1. SINCE there is nothing which ſeems more fatally to threaten a *Weakning*, if not a *Diſſolution* of the Strength of this famous and flouriſhing *Nation*, than the ſenſible and notorious Decay of her *Wooden Walls*, when either through *Time*, *Negligence*, or other *Accident*, the preſent *Navy* ſhall be worn out and impair'd; it has been a very *worthy* and ſeaſonable *Advertiſement* in the Honourable the principal *Officers* and *Commiſſioners*, what they have lately ſuggeſted to this *Illuſtrious Society* for the timely Prevention and Redreſs of this intolerable Defect. For it has not been the late Increaſe of *Shipping* alone, the Multiplication of *Glaſs-Works*, *Iron-Furnaces*, and the like, from whence this impolitick Diminution of our *Timber* has proceeded; but from the diſproportionate ſpreading of *Tillage*, cauſed through that prodigious Havock made by ſuch as lately profeſſing themſelves againſt *Root* and *Branch* (either to be re-imburs'd their *Holy* Purchaſes, or for ſome other ſordid Reſpect) were tempted, not only to *fell* and *cut* down,

INTROD.

INTROD. but utterly to *extirpate*, *demoliſh*, and *raze*, as it were, all thoſe many goodly *Woods* and *Foreſts*, which our more prudent *Anceſtors* left ſtanding, for the Ornament and Service of their *Country*. And this *Devaſtation* is now become ſo *epidemical*, that unleſs ſome favourable *Expedient* offer it ſelf, and a Way be ſeriouſly and ſpeedily reſolv'd upon, for a future Store, one of the moſt glorious and conſiderable *Bulwarks* of this *Nation*, will, within a ſhort Time, be totally wanting to it.

2. To attend now a *ſpontaneous* Supply of theſe decay'd *Materials* (which is the vulgar and natural Way) would coſt (beſides the *Inclo-ſure*) ſome entire *Ages* repoſe of the * *Plow*, though *Bread* indeed require *our* firſt Care: Therefore, the moſt expeditious and obvious *Method* would doubtleſs be *one* of theſe *two* Ways, *Sowing* or *Planting*. But, firſt, it will be requiſite to agree upon the *Species*; as what *Trees* are likely to be of greateſt *Uſe*, and the fitteſt to be cultivated; and then, to conſider of the *Manner* how it may be beſt effected. Truly, the *Waſte* and *Deſtruction* of our *Woods* has been ſo univerſal, that I conceive nothing leſs than an *univerſal Plantation of all the ſorts of Trees* will ſupply, and well encounter the Defect; and therefore I ſhall here adventure to ſpeak ſomething in general of them all; though I chiefly inſiſt upon the Propagation of *ſuch* only as ſeem to be the moſt wanting and ſerviceable to the End propoſed.

* *Patricius L. vii. De Republ.*

3. And firſt, by *Trees* here, I conſider principally for the *Genus generaliſſimum*, ſuch *lignous* and *woody Plants*, as are *hard* of Subſtance, *procere* of *Stature*; that are *thick* and *ſolid*, and ſtifly adhere to the *Ground* on which they ſtand: Theſe we ſhall divide into the *greater* and more *ceduous*, *fruticant* and *ſhrubby*; *feras* and wild; or more *civiliz'd* and domeſtick; and ſuch as are *ſative* and *hortenſial* ſubalternate to the other; but of which I give only a Touch, diſtributing the reſt into theſe two *Claſſes*, the *dry*, and the *aquatic*; both of them applicable to the ſame civil Uſes of *Building*, *Utenſils*, *Ornament*, and *Fuel*; for to dip into their *medicinal* Virtues is none of my *Province*, though I ſometimes glance at them with due *Submiſſion*, and in few *Inſtances*.

4. Among the *Dry*, I eſteem the more principal and ſolid, to be the *Oak*, *Elm*, *Beech*, *Aſh*, *Cheſs-nut*, *Wall-nut*, &c. The leſs principal, the *Service*, *Maple*, *Lime-tree*, *Horn-beam*, *Quick-beam*, *Birch*, *Haſel*, &c. together with all their *ſub-alternate* and ſeveral Kinds.

a *Which of how many Sorts they are,*
We can't ſtand here at preſent to declare.

5. Of the *Aquatical*, I reckon the *Poplars*, *Aſp*, *Alder*, *Willow*, *Sallow*, *Oſier*, &c. Then I ſhall add a Word or two, for the Encouragement of the planting of *Fruit-trees*, together with ſome leſs *vulgar*, but no leſs *uſeful* Trees, which, as yet, are not *endenizon'd* amongſt us, or (at leaſt) not much taken Notice of: And in Purſuance hereof, I ſhall obſerve this *Order*: Firſt, to ſhew how they are to be *raiſed*, and then *cultivated*. By *raiſing*, I underſtand the *Seed* and the *Soil*; by *Culture*, the *Planting*, *Fencing*, *Watering*, *Dreſſing*, *Pruning* and *Cutting*; of all which briefly.

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a Sed neque quàm multæ ſpecies, nec nomina quæ ſint,
Eſt numerus, ——— VIRG. *Geor.* ii.

6. And

6. And *firſt* for their *Raiſing*, ſome there are,

[a] *Spring of* themſelves unforc'd *by human Care*,

Specified according to the various Diſpoſition of the *Air* and *Soil*;

[b] *Some from their* Seeds *ariſe*,

As the *Oak*, *Cheſs-nut*, *Aſh*, &c.

[c] *Some to thick* Groves *from their* own Roots *do ſpring*,

As the *Elm*, *Alder*, &c. And there are others

[d] *Grow without Root*,

As *Willows*, and all the *vimineous* Kinds, which are raiſed of *Sets* only.

[e] *Theſe Ways firſt Nature gave.*

And that immortal Poet has ſo elegantly and comprehenſibly deſcrib'd, as I cannot paſs:

[f] *Some Trees their Birth to bounteous Nature owe*;
For ſome without the Pains of Planting grow:
With Oſiers *thus the Banks of Brooks abound*;
Sprung from the watry Genius of the Ground;
From the ſame Principles the grey Willows *come*,
Herculean Poplar, *and the tender* Broom:
But ſome ſuch Seeds inclos'd in Earth ariſe;
For thus the maſt-ful Cheſs-nut *mates the Skies.*
Hence riſe the branching Beech, *and vocal* Oak,
Where Jove *of old oraculouſly ſpoke.*
Some from the Root a riſing Wood diſcloſe;
Thus Elms, *and thus the ſalvage* Cherry *grows.*
Thus the green Bays *that binds the Poets Brows*,
Shoots, and is ſhelter'd by the Mother's Boughs.
Theſe Ways of Planting Nature did ordain,
For Trees *and* Shrubs, *and all the* Sylvan *Reign.*
Others there are, by late Experience found, &c.

For thus we ſee there are more Ways to the *Wood* than one, and ſhe has furniſh'd us with Variety of Expedients.

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[a] ——— nullis hominum cogentibus, ipſæ
Sponte ſua veniunt ———

[b] Pars autem poſito ſurgunt de ſemine.

[c] Pullulat ab radice aliis denſiſſima Silva.

[d] Nil radicis egent ———

[e] Hos natura modos primùm dedit ———

[f] Principio arboribus varia eſt natura creandis;
Namque aliæ, nullis hominum cogentibus, ipſæ
Sponte ſua veniunt, campoſque, & flumina late
Curva tenent: ut molle ſiler, lentæque geniſtæ,
Populus, & glauca canentia fronde ſalicta
Pars autem poſito ſurgunt de ſemine: ut altæ
Caſtaneæ, nemorumque Jovi quæ maxima frondet
Æſculus, atque habita Graiis oracula quercus.
Pullulat ab radice aliis denſiſſima ſilva:
Ut ceraſis, ulmiſque: etiam Parnaſſia laurus
Parva ſub ingenti matris ſe protegit umbra.
Hos natura modos primum dedit: his genus omne
Silvarum fruticumque viret, nemorumque ſacrorum.
Sunt alii, quos ipſe via ſibi reperit uſus, &c. VIRG. *Geor.* ii.

7. And

INTROD. 7. And here we might fall into a deep *philoſophical Reſearch*, whether the *Earth* it ſelf in ſome Place thereof or other, even without *Seed*, *Branch*, or *Root*, &c. would produce every Kind of *Vegetable*, as it manifeſtly does divers Sorts of *Graſs* and *Plants*? (*viz.*) the *Tre-foil*, or *Clover*, in *ſucculent* Land; in dry Ground, *May* and *Rag-weeds*; in the very moiſt, *Ros-ſolis*, *Argentina*, *Flags*, &c. and the very barren, *Fern*, *Broom* and *Heath*, &c. So *Virgil* notes ſterile places for the *Pitch-tree*; we our wet and *uliginous* for *Birch*, *Alder*, &c. The more lofty, poor, and *perflatile*, for *Yew*, *Juniper*, *Box*, and the like. And we read in the *Natural Hiſtories* of divers *Countries*, that the *Cedar*, *Palmetos*, *Queen-Pines*, *Ebony*, *Nutmeg*, *Cinnamon*, &c. for *Trees*; the *Tulip*, *Hyacinth*, *Crocus*, &c. for *Flowers*; are ſometimes, and in ſome Regions, *Aborigines*, deſcended immediately from the *Genius* of the *Soils*, *Climate*, *Sun*, *Shade*, *Air*, *Winds*, *Water*, *nitrous Salts*, *Rocks*, *Banks*, *Shores*, and (like the *Negros-heads* in the *Barbadoes*) as ſome imagine, even without *Seed*, or at leaſt any perceptible *Rudiment*. Let it not then be imputed an impertinent *Digreſſion*, if upon this Occaſion of *ſpontaneous* and *æquivocal* Productions, we mention how that inveterate *Diſpute*, which has exercis'd ſo many *Naturaliſts* and *Philoſophers* (about *Miſſelto*) has lately been decided by an evident Experiment, and the Teſtimony of the moſt curious and learned *Botaniſts*, by the *Seeds* of that *Excreſcence*; which being inſerted into an Hole made in the *Bark* of the *White Poplar*, produces the *Plant*, which has hitherto rais'd ſo many Years Controverſy. (See Mr. *Ray*'s *Hiſt. Plant.* p. 1583, and *Appendix*, p. 1918.)

But after all this, there are who ſuppoſe ſome *previous* ſeminal Diſpoſition to be lurking, and diſpers'd in every Part of the Earth (in what *Molaculæ*, or ſubtile *Contexture*, they cannot diſcover) which tho' haply not at firſt ſo perfect as the maturer *Seeds* of their after peculiar *Plants*; yet ſuch as are fit for the *Sun* and *Influences* to operate on, 'till they have prepar'd, diſcuſs'd, and excited the *ſeminal* and *prolifick* Virtue to exert it ſelf and awake out of Sleep, in which they lie as in their *Cauſes*, freeing themſelves from thoſe Impediments which hindred their *Specification* and Nativity. This Conception the learned *Gaſſendus* would illuſtrate by the latent *Fire* in *Flints*, which never betrays it ſelf till it be forced out by *Colliſion*: But which yet, methinks, does not ſo fully enlighten this *Hypotheſis*, which we only mention: For the Deſign of this *Diſcourſe* is not to perſuade *Men* to *ſit ſtill*, and let *Nature* work alone, but to aid and aſſiſt *her* as much as they are able, from *Seeds* and *Plants* already perfected, and qualified for more ſpeedy *Propagation*. It not being in any Sort my Meaning throughout all this Diſcourſe, as if (where I ſpeak of *ſpontaneous Productions*) I believed that any *Vegetables* raiſed themſelves, without ſome *prediſpoſed* qualified *Seed* or *Principle*: But by *ſpontaneous*, I underſtand ſuch *Trees* and *Plants* as were not ſown or cultivated by human Induſtry; as moſt of our *Foreſt-Trees* never were, and yet had their Original from perfect *Seeds*. And if I think the ſame of all *Animals*, even to the minuteſt *Worm* and *Inſect*; there are ſo many learned Perſons and Experiments to juſtifie it, that I need ſay no more. Moſt ingenious, in the mean time, is what ſome upon an accurate and narrow Gueſs have not feared to pronounce; namely, that all Planting by *Seed* was but a Kind of *Inoculation*; and Propa-

gation by *Cyons* and *Sprouts*, but a *ſubteranean Graffing*. And upon this Account I am the more willing to aſſent, that in *removing* of wild Trees taken out of incumbered Places (ſo it be performed with all due Circumſtances) there may happen conſiderable *Improvements*; ſince as there is ſomething in *Super-graffing*, or the Repetition of *Graffing*, for the Inlargement and Melioration of *Fruit*, ſo there may be alſo in a careful *Removal*; eſpecially the *Tree* being of a Kind apt to dilate its *Roots*, and taken whilſt thoſe *Roots* may be ſafely and intirely transferred; and likewiſe, becauſe it is preſumed that moſt *Trees* propagated by *Seeds*, emit a principal *Root* very deep into the Earth, which frequently extracting but a coarſer *Nutriment* (though it may haply yield a cloſe and firmer *Timber*) is not yet ſo apt to ſhoot and ſpread, as what are by *Removal* deprived of that *Root*, and by being more *impregnate* with the *Sun*, *Dews*, and heavenly *Influences* near the Surface, enabled to produce larger, more delicate and better taſted *Fruit*; ſuppoſing *Nuts*, *Maſt*, or *Berries*; for we would not go out of our *Foreſt* for Inſtances. And yet even in theſe Deſcents of the *top Root*, it ſometimes penetrating to a Vein of ſome rich *Marl* or other Mould, the extraordinary Flouriſhing and Expedition of Growth, will ſoon give Notice of it. But to make ſome *Trial* of this, it were no difficult Matter, when one plants a *Nurſery* or *Grove*, to experiment what the *Earth*, as far as the *Roots* are like to reach, will advance and diſcover to us.

8. In the mean time, it has been ſtifly controverted by ſome, whether were better to raiſe *Trees* for *Timber* and the like Uſes, from their *Seeds* and firſt *Rudiments*; or to *tranſplant* ſuch as we find have either raiſed themſelves from their *Seeds*, or ſpring from the *Mother-Roots*? Now that to produce them immediately of the *Seed* is the better Way, theſe *Reaſons* may ſeem to evince.

Firſt, becauſe they *take* ſooneſt. *Secondly*, becauſe they make the *ſtraiteſt* and moſt uniform Shoot. *Thirdly*, becauſe they will neither require *ſtaking* nor *watering* (which are two very conſiderable *Articles*.) And *laſtly*, for that all *tranſplanting* (though it much improves *Fruit-trees*) unleſs they are taken up the firſt Year or two, is a conſiderable Impediment to the Growth of *Foreſt-trees*. And though it be true, that divers of thoſe which are found in *Woods*, eſpecially *Oaklings*, young *Beeches*, *Aſh*, and ſome others, ſpring from the ſelf-ſown *Maſt* and *Keys*; yet being for the moſt part dropp'd, and diſſeminated among the half-rotten Sticks, muſty Leaves, and Perplexities of the *Mother-Roots*, they grow ſcraggy; and being overdripp'd, become ſqualid and apt to gather Moſs,

[a] *Which checks their Growth, and makes their Bodies pine.*

Nor can their Roots *expand*, and ſpread themſelves as they would do, if they were *ſown*, or had been *planted* in a more open, free, and ingenuous *Soil*. And that this is ſo, I do affirm upon *Experience*, that an *Acorn* ſown by Hand in a *Nurſery*, or Ground where it may be free from theſe Incumbrances, ſhall in two or three Years out-ſtrip a *Plant* of twice that Age, which has either been *ſelf-ſown* in the *Woods*, or removed; unleſs it fortune, by ſome favourable Accident, to have been ſcattered into a more natural, penetrable, and better qualified Place: But this Diſproportion is

[a] Creſcentique adimunt fœtus, uruntque ferentem. *Geor.* ii.

INTROD. yet infinitely more remarkable in the *Pine*, and the *Wall-nut Tree*, where the *Nut* ſet into the Ground does uſually overtake a *Tree* of *ten Years* Growth which was planted at the ſame Inſtant; and this is a *Secret* ſo generally miſrepreſented by moſt of thoſe who have treated of theſe Sort of *Trees*, that I could not ſuffer it to paſs over without a particular *Remark*; ſo as the noble *Poet* (with Pardon for receding from ſo venerable *Authority*) might be miſtaken, when he delivers this Obſervation as *univerſal*, to the Prejudice of *Sowing*, and raiſing *Woods* from their Rudiments:

[a] *Trees which from ſcatter'd Seeds to ſpring are made,*
Come ſlowly on, for our Grand-childrens Shade.

And, indeed, I know divers are of this Opinion; and poſſibly in ſome luckier *Soils*, and where extraordinary Care is had in *tranſplanting* and removing Cumbrances, *&c.* there may be Reaſon for it: But I affirm it ὡς ὂπὶ πολὺ, and for the moſt part, and find I have the Suffrage of another, no inelegant *Poet*, if not in a full Aſſent to my *Aſſertion*, yet in the Choice of my Procedure for their Perfection.

[b] ——*Though* Suckers *which the* Stock *repair,*
Will with thick Branches crowd the empty Air;
Or the Ground-Oak *tranſplanted, Boughs may ſhoot,*
Yet no ſuch Grove *does with my Fancy ſuit,*
As what from Acorns *ſet on even Rows,*
In open Fields at their due Diſtance grows.
What though your Ground long Time muſt fallow *lie,*
And Seedling-*Oaks yield but a ſlow Supply?*
No Walks elſe can be for like Beauty prais'd:
For, certain 'tis that Plants *from* Acorns *rais'd,*
As to the Center *deeper* Fibers *ſpread,*
So to the Zenith *more advance their Head:*
Be it that Plants *for natural Moiſture pine,*
And as expos'd, at Change of Soil *decline;*
Or that the Acorn *with its native Mould,*
Does thrive and ſpread, and firm Alliance hold.

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[a] Nam quæ ſeminibus jactis ſe ſuſtulit arbos
Tarda venit; ſeris factura nepotibus umbram. *Geor. l. ii.*

[b] ——Quamvis ipſa de ſtirpe parentis
Pullulet, & tenues tollat ſe quercus in auras,
Aut mutata ſolo, ramis exſultet opacis;
Forma tamen nemoris non ſit mihi gratior ulla,
Quam quod per campos, poſito de ſemine, crevit.
Et quamquam ſit agro prælongum tempus inerti
Ducendum, ac tardæ ſurgant de ſemine quercus,
His tamen, his longe veniunt felicius umbræ.
Nam certum eſt de glande ſatas radicibus imis
Altius in terram per ſe deſcendere plantas:
Majoreſque adeo in cœlum profundere ramos.
Seu quod dediſcant mutatam ſemina matrem,
Degeneremque ferant alieno ex ubere prolem:
Sive quod ipſa ſibi cognatæ inoleſcere terræ
Glans primo melius paulatim aſſuevit ab ortu.

RAPINUS *Hort.* l. ii.

DENDROLOGIA.

BOOK I.

CHAP. I.

Of the Earth, Soil, Seed, Air and Water.

CHAP. I. EARTH.

1. IT is not my Intention here to ſpeak of *Earth*, as one of the common reputed *Elements*; of which I have long ſince publiſhed an ample Account, in an expreſs *Treatiſe* (annexed to this Volume) which I deſire my *Reader* to peruſe; ſince it might well *commute* for the total *Omiſſion* of this *Chapter*, did not Method ſeem to require ſomething briefly to be ſaid: Which firſt, as to that of *Earth*, we ſhall need at preſent to penetrate no deeper into her Boſom, than after paring off the *Turf*, ſcarrifying the upper Mould, and digging convenient *Pits* and *Trenches*, not far from the natural Surface, without diſturbing the ſeveral *Strata* and remoter *Layers*, whether of *Clay*, *Chalk*, *Gravel*, *Sand*, or other ſucceſſive *Layers*, and *Concrets Foſſil* (though all of them uſeful ſometimes, and agreeable to our *Foreſters*) though few of them what one would chooſe before the under Turf, *black*, *brown*, *gray* and *light*, and breaking into ſhort Clods, and without any diſagreeable Scent, and with ſome Mixture of *Marl*, or *Loam*, but not clammy; of which I have particularly ſpoken in that Treatiſe.

SOIL.

2. In the mean Time, *this* of the *Soil* (which I think is a more proper Term for *Compoſts*) or Mould *rather*, being of greater Importance for the Raiſing, Planting, and Propagation of Trees in general, muſt at no hand be neglected, and is therefore on all Occaſions mentioned in almoſt every *Chapter* of our enſuing Diſcourſe: I ſhall therefore not need to aſſign it any Part, when I have affirmed in general, that moſt *Timber-Trees* grow and proſper well in any tolerable *Land* which will produce *Corn* or *Rye*, and which is not in Exceſs *ſtony*, in which nevertheleſs there are ſome *Trees* delight, or altogether *Clay*, which few or none do naturally effect; and yet the *Oak* is ſeen to proſper in it, for its Toughneſs preferred before any other by many Workmen, though of all *Soils* the *Cow-Paſture* doth certainly exceed, be it for what Purpoſe ſoever of planting *Wood*. Rather therefore we ſhould take Notice how many great *Wits* and *ingenious* Perſons, who have Leiſure and Faculty, are in Pain for *Improvements* of their *Heaths* and barren *Hills*, cold and ſtarving Places, which cauſes them to be neglected and deſpaired of; whilſt they flatter their Hopes and vain Expectations with fructifying Liquors, *Chymical Menſtruums*, and ſuch vaſt Conceptions; in the mean Time that one may ſhew them as *heathy* and *hopeleſs* Grounds, and barren *Hills* as any in *England*, that do now bear, or lately have born *Woods*, *Groves*, and *Copſes*, which yield the *Owners* more *Wealth* than the richeſt

and

Book I. and moſt opulent *Wheat-Lands*: And if it be objected, that it is ſo long a Day before theſe *Plantations* can afford that Gain; the *Brabant* Nurſeries, and divers Home-Plantations of *induſtrious Perſons*, are ſufficient to convince the Gain-ſayer. And when by this *Huſbandry* a few *Acorns* ſhall have ſupplied the neighbouring *Regions* with young *Stocks* and *Trees*, the Reſidue will become *Groves* and *Copſes* of infinite Delight and Satisfaction to the *Planters*. Beſides, we daily ſee what *coarſe Lands* will bear theſe *Scocks* (ſuppoſe them *Oaks*, *Wall-nuts*, *Cheſs-nuts*, *Pines*, *Fir*, *Aſh*, *Wild-Pears*, *Crabs*, &c.) and ſome of them (as for Inſtance the *Pear* and the *Fir*, or *Pine*) ſtrike their *Roots* through the rougheſt and moſt impenetrable *Rocks* and Clefts of *Stone* it ſelf; and others require not any *rich* or *pinguid*, but very moderate *Soil*; eſpecially, if committed to it in *Seeds*, which allies them to their *Mother* and *Nurſe* without Renitency or Regret: And then conſidering what Aſſiſtances a little *Care* in eaſing and ſtirring of the Ground about them, for a few Years, does afford them; what cannot a ſtrong *Plow*, a *Winter* Mellowing, and *Summer* Heats, incorporated with the pregnant *Turf*, or a ſlight Aſſiſtance of *Lime*, *Loam*, *Sand*, rotten *Compoſt*, diſcreetly mixed (as the Caſe may require) perform even in the moſt unnatural and obſtinate *Soil?* And in ſuch Places where antiently *Woods* have grown, but are now unkind to them, the Fault is to be reformed by this Care; and chiefly by a ſedulous *Extirpation* of the old Remainders of *Roots*, and latent *Stumps*, which by their *Muſtineſs*, and other pernicious Qualities, ſowre the Ground, and poiſon the *Conception*; and herewith let me put in this Note, that even an over-rich and pinguid Compoſition, is by no means the proper *Bed* either for *Seminary* or *Nurſery*, whilſt even the natural *Soil* it ſelf does frequently diſcover and point beſt to the particular *Species*, though ſome are for all Places alike: Nor ſhould the *Earth* be yet perpetually cropp'd with the *ſame*, or other *Seeds*, without due *Repoſe*, but lie ſome time *fallow* to receive the *Influence* of *Heaven*, according to good Husbandry. But I ſhall ſay no more of theſe *Particulars* at this Time, becauſe the reſt is ſprinkled over this whole *Work* in their due Places; wherefore we haſten to the following *Title*, namely, the Choice and Ordering of the *Seeds*.

3. Chooſe your *Seed* of that which is perfectly *mature*, *ponderous* and *ſound*; commonly that which is eaſily ſhaken from the *Boughs*, or gathered about *November*, immediately upon its ſpontaneous Fall, or taken from the Tops and Summities of the faireſt and ſoundeſt *Trees* is beſt, and does (for the moſt part) direct to the proper Seaſon of *interring*, &c. according to *Inſtitution*. For,

> [a] *Nature her ſelf, who all created firſt,*
> *Invented Sowing, and the wild Plants nurſt:*
> *When Maſt and Berries from the Trees did drop,*
> *Succeeded under by a numerous Crop.*

Yet this is to be conſidered, that if the *Place* you ſow in be too cold for an *autumnal* Semination, your *Acorns*, *Maſt*, and other *Seeds* may be prepared for the *Vernal*, by being barrel'd or potted up in moiſt *Sand*, or *Earth ſtratum ſ. ſ.* during the *Winter*; at the Expi-

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[a] Nam ſpecimen ſationis, & inſitionis origo
Ipſa fuit rerum primum natura creatrix:
Arboribus quoniam baccæ, glandeſque caducæ
Tempeſtiva dabant pullorum examina ſubter, &c. LUCRET. l. v.

ration

ration whereof you will find them *ſprouted*; and being committed to the Earth, with a tender Hand, as apt to *take* as if they had been ſown with the moſt early, nay, with great Advantage: By this means too, they have eſcaped the *Vermin* (which are prodigious Devourers of *Winter* ſowing) and will not be much concern'd with the increaſing Heat of the Seaſon, as ſuch as being crude, and *unfermented*, are newly ſown in the Beginning of the *Spring*, eſpecially in hot and looſe Grounds; being already in ſo fair a Progreſs by this artificial Preparation, and which (if the Proviſion to be made be very great) may be thus managed: Chooſe a fit Piece of *Ground*, and with Boards (if it have not that *Poſition* of it ſelf) deſign it three *Foot* high; lay the firſt *Foot* in fine Earth, another of Seeds, *Acorns*, *Maſt*, *Keys*, *Nuts*, *Haws*, *Holly-Berries*, &c. promiſcuouſly or ſeparate, with (now and then) a little *Mould* ſprinkled amongſt them; the third *Foot* wholly Earth: Of theſe preparatory *Magazines* make as many and as much larger ones as will ſerve your Turn, continuing it from time to time as your *Store* is brought in. The ſame for ruder Handlings, may you alſo do by burying your Seeds in dry *Sand*, or pulveriz'd Earth, *barrelling* them (as I ſaid) in *Tubs*, or laid in Heaps in ſome deep *Cellar*, where the Rigour of the *Winter* may leaſt prejudice them; and I have filled old *Hampers*, *Bee-hives* and *Boxes* with them, and found the like Advantage, which is to have them ready for your *Seminary*, as before hath been ſhew'd, and exceedingly prevent the Seaſon. There be alſo who affirm, that the careful Cracking and Opening of *Stones*, which include the *Kernels*, as ſoon as ripe, precipitate *Growth*, and gain a *Year's* Advance; but this is erroneous. Now if you gather them in moiſt Weather, lay them a drying, and ſo keep them till you *ſow*, which may be as ſoon as you pleaſe after *Chriſtmas*. If they ſpire out before you ſow them, be ſure to commit them to the Earth before the *Sprout* grows dry, or elſe expect little from them: And whenever you ſow, if you prevent not the little *Field-Mouſe*, he will be ſure to have the better Share. See *Chap.* XVIII.

4. But to purſue this to ſome farther Advantage, as to what concerns the Election of your *Seed*, it is to be conſidered, that there is a vaſt Difference (what if I ſhould affirm more than an *hundred Years*) in *Trees* even of the ſame *Growth* and *Bed*, which I judge to proceed from the Variety and Quality of the *Seed*: This, for *Inſtance*, is evidently ſeen in the *Heart*, *Procerity* and Stature of *Timber*; and therefore chooſe not your *Seeds* always from the moſt *fruitful Trees*, which are commonly the moſt *aged*, and decayed; but from ſuch as are found moſt *ſolid* and *fair*: Nor, for this Reaſon, covet the largeſt *Acorns*, &c. but (as *Husbandmen* do their *Wheat*) the moſt *weighty*, *clean* and *bright*: This Obſervation we deduce from *Fruit-Trees*, which we ſeldom find to bear ſo kindly and plentifully from a *ſound* Stock, *ſmooth* Rind, and *firm* Wood, as from a *rough*, *lax*, and *untoward* Tree; which is rather prone to ſpend it ſelf in *Fruit* (the ultimate Effort, and final Endeavour of its moſt delicate *Sap*) than in ſolid and cloſe *Subſtance* to encreaſe the *Timber*. And this ſhall ſuffice, though ſome haply might here recommend to us a more accurate *microſcopical* Examen, to interpret their moſt ſecret *Schematiſms*, which were an over *Nicety* for theſe great *Plantations*.

5. As concerning the *Medicating* and *Inſuccation* of *Seeds*, or enforcing the *Earth* by rich and generous *Compoſts*, &c. for *Trees* of theſe

Book I. Kinds, I am no great Favourer of it; not only becauſe the *Charge* would much diſcourage the *Work*; but for that we find it unneceſſary, and for moſt of our *Foreſt-trees*, noxious; ſince even where the Ground is too fertile, they thrive not ſo well; and if a *Mould* be not proper for one Sort, it may be fit for another: Yet I would not (by this) hinder any from the Trial, what Advance ſuch *Experiments* will produce: In the mean Time, for the ſimple *Imbibition* of ſome *Seeds* and *Kernels*, when they prove extraordinary *dry*, as the Seaſon may fall out, it might not be amiſs to *macerate* them in *Milk* or *Water* only, a little *impregnated* with *Cow-dung*, &c. during the ſpace of twenty-four Hours, to give them a *Spirit* to ſprout and *chet* the ſooner; eſpecially if you have been retarded in your *ſowing* without our former Preparation: But concerning the *Mould*, *Soiling* and Preparations of the *Ground*, I refer you to my late Treatiſe of *Earth*, if what you meet with in *this* do not abundantly encounter all thoſe Difficulties.

6. Being thus provided with *Seeds* of all Kinds, I would adviſe to raiſe *Woods* by ſowing them *apart* in ſeveral Places deſtin'd for their Growth, where the *Mould* being prepar'd (as I ſhall ſhew hereafter) and ſo qualified (if Election be made) as beſt to ſuit with the Nature of the *Species*, they may be ſown *promiſcuouſly*, which is the moſt natural and *rural*; or in ſtreight and even *Lines*, for *Hedge-rows*, *Avenues* and *Walks*, which is the more *ornamental*: But becauſe ſome may chooſe rather to draw them out of *Nurſeries*; that the *Culture* is not much different, nor the Hinderance conſiderable (provided they be early and carefully removed) I will finiſh what I have to ſay concerning theſe *Trees* in the *Seminary*, and ſhew how they are *there* to be *raiſed*, *tranſplanted*, and *governed* till they can ſhift for themſelves.

Air. As to the *Air* and *Water*, they are certainly of almoſt as great Importance to the *Life* and Proſperity of *Trees* and *Vegetables*; and therefore it is to be wiſh'd for and ſought, where they are defective; and which commonly follow, or *indicate* the Nature of the Soil, or the *Soil* of them (taking *Soil* here promiſcuouſly for the *Mould*) that they be neither too *keen* or *ſharp*, too *cold* or *hot*, not infected with Fogs and poiſonous Vapours, or expos'd to *ſulphurous* Exhalations, or *frigiverous* Winds, reverberating from Hills and other ill-ſituate Eminencies, preſſing down the incumbent Particles ſo tainted or convey'd through the incloſed Valleys; but ſuch as may gently enter and *pervade* the *Cenabs* and *Veſſels* deſtin'd and appointed for their Reception, *Intromiſſion*, Reſpiration and Paſſage, in almoſt continual Motion; in a Word, ſuch as is moſt agreeable to the Life of *Man*, the inverted *Head* compared to the *Root*, both *Vegetables* and *Animals* alike affected with thoſe neceſſary Principles, *Air* and *Water*, ſoon ſuffocated and periſhable for the want of either, duly qualified with their proper Mixts, be it *Nitre*, or any other vegetable Matter; though we neither *ſee*, nor diſtinctly *taſte* it: So as all *Aquatics*, how deeply ſoever ſubmerg'd, could not ſubſiſt without this active *Element* the *Air*.

Water. The ſame Qualification is (as we ſaid) required in *Water*, to which 'tis of ſo near Alliance, and whoſe Office it is not only to *humectate*, *mollify* and prepare both the *Seeds* and *Roots* of Vegetables, to receive the Nutrition, *Pabulum*, and Food, of which this of *Water* as well as *Air* are the proper *Vehicles*, inſinuating what they carry into the numerous *Pores*, and through the *Tubes*, *Canales*, and other emulgent Paſſages and Percolations to the ſeveral Veſſels, where (as in a *Stomach*) it is elaborated,

elaborated, concocted and digested, for Distribution through every Part of the Plant; and therefore had need be such as should *feed*, not *starve*, infect or corrupt; which depends upon the Nature and Quality of the *mix'd*, with what other Virtue, *Spirit*, *Mineral*, or other Particles, accompanying the purest Springs (to Appearance) passing through the closest Strainers. This therefore requires due Examination, and sometimes Exposure to the *Air* and *Sun*, and accordingly the Crudity and other Defects taken off and qualified: All which, *Rain-Water*, that has had its natural *Circulation*, is greatly free from, so it meets with no noxious Vapours in the Descent, as it must do passing through *fuliginous* Clouds of *Smoak* and *Soot*, over and about great *Cities*, and other *Vulcanos*, continually vomiting out their acrimonious, and sometimes pestiferous Fervor, infecting the ambient *Air*, as it perpetually does about *London* and for many adjacent Miles, as I have elsewhere * shew'd.

See Chap. V. Book III.

* Bumefugium.

In the mean Time, whether *Water* alone is the Cause of the solid and bulky Part, and consequently of the Augmentation of *Trees* and Plants, without any thing more to do with that *Element* (though as it serves to transport some other Matter) is very ingenuously *discuss'd*, and curiously enquired into by Dr. *Woodward*, in his *History of the Earth*, fortified with divers nice Experiments, too large to be here inserted: The Sum is, that *Water*, be it of *Rain* or the *River* (superior or inferior) carries with it a certain *superfine terrestrial* Matter, not destitute of vegetative Particles; which gives Body, Substance, and all other Requisites to the Growth and Perfection of the Plant, with the Aid of that due *Heat* which gives Life and Motion to the *Vehicles* Passage through all the Parts of the *Vegetable*, continually *ascending*, till (having sufficiently *saturated* them) it transpires the rest of the *Liquid* at the *Summity* and Tops of the Branches into the *Atmosphere*, and leaving some of the less *refined* Matter in a *viscid Honey-dew*, or other *Exsudations* (often perceived on the Leaves and Blossoms) anon *descending* and joining again with what they meet, repeat this Course in perpetual *Circulation*: Add to this, That from hence those *Regions* and Places, crowded with numerous and thick standing *Forest-Trees* and Woods (which hinder the necessary *Evolition* of this superfluous Moisture and Intercourse of the *Air*) render those Countries and Places more subject to *Rain* and *Mists*, and consequently *unwholsome*; as is found in our *American* Plantations, as formerly nearer us in *Ireland*; both since so much improved by felling and clearing these *spacious Shades*, and letting in the *Air* and *Sun*, and making the Earth fit for Tillage and Pasture, that those gloomy Tracts are now become *healthy* and *habitable*. It is not to be imagined how many noble *Seats* and Dwellings in this Nation of ours (to all Appearance well situated) are for all that unhealthful, by Reason of some *Grove* or *Hedge-rows* of antiquated dotard Trees; nay, sometimes a single *Turf* only (especially the falling *autumnal* Leaves neglected to be taken away) filling the Air with musty and noxious Exhalations; which being *ventilated* by *Glades* cut through them, for Passage of the stagnant Vapours, have been cur'd of this Evil, and recovered their Reputation.

But to return to where we left; *Water* in this Action, imbib'd with such Matter, applicable to every *Species* of Plants and Vegetables, does not, as we affirmed, operate to the full Extent and Perfection of what it gives and contributes of necessary and *constituent* Matter, without the *Soil* and Temper of the *Climate* co-operate; which otherwise re-

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Book I. tards both the Growth and Subſtance of what the Earth produces, ſenſibly altering their Qualities, if ſome friendly and *genial Heat* be wanting to exert the prolifick Virtue: This we find, that the hot and warmer Regions produce the talleſt and goodlieſt Trees and Plants, in Stature and other Properties far exceeding thoſe of the ſame *Species*, born in the cold *North*; ſo as what is a *Giant* in the *one*, becomes a *Pumilo*, and, in Compariſon, but a ſhrubby *Dwarf* in the *other*, deficient of that active *Spirit*, which elevates and ſpreads its prolifick Matter and continual Supplies without Check, and is the Cauſe of not only the *Leaves* deſerting the Branches, whilſt thoſe Trees and Plants of the more benign *Climate* are clad in *perennial* Verdure; and thoſe herbacious Plants, which with us in the hoteſt Seaſons hardly perfect their Seeds before *Winter*, and require to be near their genial Beds and Nurſe, and ſometimes the artificial Heat of the *Hot-Bed*: Laſtly, To all this I would add that other chearful Vehicle, *Light*; which the gloomy and *torpent North* is ſo many Months depriv'd of; the too long Secluſion whereof is injurious to our *Exotics*, kept in the *Conſervatories*; ſince however tempered with Heat, and duly refreſhed, they grow ſickly, and languiſh without the Admiſſion of *Light* as well as *Air*, as I have frequently found.

CHAP. II.

Of the Seminary; and of Tranſplanting.

Seminary. 1. QUI *Vineam, vel Arbuſtum conſtituere volet, Seminaria prius facere debebit*, was the Precept of *Columella*, Lib. iii. Cap. v. ſpeaking of *Vineyards* and *Fruit-trees*; and doubtleſs we cannot purſue a better Courſe for the Propagation of *Timber-trees:* For though it ſeem but a trivial Deſign, that one ſhould make a *Nurſery* of *Foreſters*; yet it is not to be imagined, without the Experience of it, what prodigious *Numbers* a very ſmall *Spot* of Ground, well cultivated, and deſtin'd for this Purpoſe, would be able to *furniſh* towards the ſending forth of yearly *Colonies* into all the naked Quarters of a *Lordſhip* or *Demeſne*; being with a pleaſant *Induſtry* liberally diſtributed amongſt the *Tenants*, and diſpoſed of about the *Hedge-rows*, and other *waſte* and uncultivated Places for *Timber*, *Shelter*, *Fuel* and *Ornament*, to an incredible Advantage. This being a cheap and laudable Work, of ſo much *Pleaſure* in the Execution, and ſo certain a *Profit* in the Event; to be but *once* well done (for, as I affirm'd, a very ſmall *Plantarium* or *Nurſery* will in a few Years ſtock a vaſt Extent of Ground) hath made me ſometimes in Admiration at the univerſal Negligence, as well as rais'd my Admiration, that *Seeds* and *Plants* of ſuch different Kinds, ſhould, like ſo many tender *Babes* and *Infants*, ſuck and thrive at the ſame Breaſts: Though there are ſome indeed will not ſo will proſper in Company, requiring peculiar *Juices:* But this Niceneſs is more conſpicuous in *Flowers*, and the *Herbacious* Offspring, than in *Foreſters*, which require only diligent Weeding and frequent Cleanſing, till they are able to ſhift for themſelves; and as their Veſſels enlarge and *introſume* more copious Nouriſhment, often ſtarve their Neighbours. Thus much for the Nurſery and *Conſeminea Silva.*

2. Having therefore made Choice of ſuch *Seeds* as you would ſow, by taking and gathering them in their juſt *Seaſon*, that is, when *dropping*

ping ripe; and (as has been ſaid) from fair *thriving* Trees; and found out ſome fit Place of *Ground*, well *fenced*, reſpecting the *South-Eaſt*, rather than the full *South*, and well protected from the *North* and *Weſt*: CHAP. II.

[a] *He that for Wood his Field would ſow,*
Muſt clear it of the Shrubs *that grow;*
Cut Brambles up, and the Fern mow.

This done, let it be *broken up* the *Winter* before you *ſow*, to mellow it; eſpecially if it be a *Clay*, and then the *Furrow* would be made deeper; or ſo at leaſt, as you would prepare it for *Wheat:* Or you may *Trench* it with the *Spade*, by which Means it will the eaſier be cleanſed of whatſoever may obſtruct the putting forth, and inſinuating of the tender *Roots:* Then having given it a ſecond *ſtirring*, immediately before you *ſow*, caſt and diſpoſe it into *Rills*, or ſmall narrow *Trenches*, of four or five Inches deep, and in even Lines, at two Foot interval, for the more commodious *Runcation*, *Hawing*, and Dreſſing the Trees: Into theſe *Furrows* (about the *New* or Increaſing *Moon*) throw your *Oak*, *Beach*, *Aſh*, *Nuts*, all the *Glandiferous* Seeds, *Maſt* and *Key-bearing* Kinds, ſo as they lie not too thick, and then cover them very well with a *Rake*, or fine-tooth'd *Harrow*, as they do for *Peaſe:* Or, to be more accurate, you may ſet them as they do *Beans* (eſpecially the *Nuts* and *Acorns*) and that every *Species* by themſelves, for the *Roboraria*, *Glandaria*, *Ulmaria*, &c. which is the better Way: This is to be done at the latter End of *October*, for the *Autumnal* ſowing; and in the lighter Ground about *February*, for the *Vernal*. For other *Seminations* in general, ſome divide the *Spring* in three Parts; the *Beginning*, *Middle* and *End*; and the like of the *Autumn*, both for *ſowing* and *planting*, and accordingly prepare for the Work ſuch *Nurſery* Furniture, as ſeems moſt agreeable to the Seaſon.

[b] *Then ſee your hopeful* Grove *with* Acorns *ſown;*
But e'er your Seed *into the Field be thrown,*
With crooked Plough *firſt let the luſty* Swain
Break up, and ſtubborn Clods with Harrow *plain;*
Then, when the Stem appears, to make it bear,
And lighten the hard Earth with Hough, *prepare:*
Hough in the Spring, *nor frequent Culture fail,*
Leſt noxious Weeds *o'er the young* Wood *prevail.*
To barren Ground with Toil large Manure add;
Good Husbandry will force a Ground that's bad.

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[a] Qui ſerere ingenuum volet agrum,
Liberat prius arva fruticibus;
Falce rubos, filicemque reſecat. BOETH. *l.* ii. *Met.*

[b] Proinde nemus ſparſa cures de glande parandum:
Sed tamen ante tuo mandes quam ſemina campo;
Ipſe tibi duro robuſtus vomere foſſor
Omne ſolum ſubigat late, explanetque ſubactum.
Cumque novus fiſſo primum de germine ramus
Findit humum, rurſus ferro verſanda bicorni
Conſita vere novo tellus, cultuque frequenti
Exercenda, herbæ circum ne forte nocentes
Proveniant, germenque ipſum radicibus urant.
Nec cultu campum cunctantem urgere frequenti,
Et ſaturare fimo pudeat, ſi forte reſiſtat
Culturæ: nam triſtis humus ſuperanda colendo eſt. RAPINUS, *l.* ii.

Book I. Note, that ſix *Buſhels* of *Acorns* will ſow or plant an *Acre*, at one Foot's Diſtance. And if you mingle among the *Acorns* the Seeds of *Geniſta ſpinoſa*, or *Furs*, they will come up without any Damage, and for a while needs no other Fence, and will be kill'd by the Shade of the young *Oaklings*, before they become able to do them any Prejudice.

One *Rule* I muſt not omit, That you caſt no Seeds into the Earth whilſt it either actually *rains*, or that it be over *ſobb'd*, till moderately dry.

To this might ſomething be expected concerning the *watring* of our *Seminaries* and new *Plantations*; which indeed require ſome uſeful Directions (eſpecially in that you do by *Hand*) that you pour it not with too great a Stream on the *Stem* of the *Plant*, which waſhes and drives away the Mould from the Roots and Fibers; but at ſuch Diſtance, as it may *percolate* into the Earth, and carry its Vertue to them, with a ſhallow *Excavation*, or *circular Baſin*, about the Stalk; and which may be defended from being too ſuddenly exhauſted and drunk up by the *Sun*, and taken away before it grow mouldy. The *tender Stems* and *Branches* ſhould yet be more gently refreſhed, leſt the too *intenſe Rays* of the *Sun* darting on them, cauſe them to wither, as we ſee in our *fibrous Flower-Roots* newly ſet: In the mean Time, for the more ample young Plantations of *Foreſt* and other *Trees*, I ſhould think the *Hydrantick* Engine (call'd the *Quench-fire*) (deſcribed in the *Philoſophical Tranſaction*, *Number* 128.) might be made very uſeful, rightly manag'd, and not too violently pointed againſt any *ſingle Trees*, but ſo exalted and directed, as the Stream being ſpread, the Water might fall on the Ground like Drops of *Rain*; which I ſhould much prefer before the *Barrels* and *Tumbral* Way. *Rain*, *River*, or *Pond-waters* reſerved in *Tubs* or *Ciſterns*, ſimple or enrich'd, and abroad in the *Sun*, ſhould be frequently ſtirred, and kept from Stagnation.

4. Your *Plants* beginning now to peep, ſhould be *earthed* up, and comforted a little, eſpecially after breaking of the greater *Froſts*, and when the ſwelling Mould is apt to ſpue them forth; but when they are about an *Inch* above Ground, you may, in a *moiſt* Seaſon, draw them up where they are too *thick*, and ſet them immediately in other *Lines* or *Beds* prepar'd for them; or you may plant them in double *Foſſes*, where they may abide for good and all, and to remain till they are of a competent Stature to be *tranſplanted*; where they ſhould be ſet at ſuch *Diſtances* as their ſeveral *Kinds* require; but if you draw them only for the thinning of your *Seminary*, prick them into ſome empty *Beds* (or a *Plantarium* purpoſely deſign'd) at one Foot *interval*, leaving the reſt at two or three.

5. When your *Seedlings* have ſtood thus till *June*, beſtow a ſlight digging upon them, and ſcatter a little *mungy*, half-rotten *Litter*, *Fern*, *Bean-haine* or old *Leaves* among them, to preſerve the *Roots* from ſcorching, and to entertain the Moiſture; and then in *March* following (by which Time it will be quite conſum'd, and very mellow) you ſhall chop it all into the *Earth*, and mingle it together: Continue this *Proceſs* for two or three Years ſucceſſively, for till *then* the Subſtance of the *Kernel* will hardly be ſpent in the Plant, which is of main Import; but then (and that the Stature of your young *Imps* invite) you may plant them forth, carefully taking up their *Roots*, and cutting the *Stem* within an *Inch* of the Ground (if the *Kind*, of which hereafter, ſuffer the *Knife*) ſet them where they are to continue: If thus you reduce them to the Diſtance of forty Foot, the Intervals may be planted

planted with *Aſh*, which may be fell'd either for *Poles* or *Timber*, without the leaſt Prejudice of the *Oak:* Some repeat the *Cutting*, we ſpake of, the ſecond Year, and after *March* (the *Moon* decreaſing) re-cut them at half a Foot from the *Surface*, and then meddle with them no more: But this (if the *Proceſs* be not more ſevere than needs) muſt be done with a very ſharp *Inſtrument*, and with Care, leſt you violate and unſettle the *Root*; which is likewiſe to be practis'd upon all thoſe which you did not *tranſplant*, unleſs you find them very thriving *Trees*; and then it ſhall ſuffice to *prune* off the *Branches*, and ſpare the *Tops*; for this does not only greatly eſtabliſh your *Plants*, by diverting the *Sap* to the *Roots*, but likewiſe frees them from the Injury and Concuſſions of the *Winds*, and makes them to produce handſome, ſtreight *Shoots*, infinitely preferable to ſuch as are abandon'd to *Nature* and *Accident*, without this Diſcipline: By this Means the *Oak* will become excellent *Timber*, ſhooting into ſtreight and ſingle *Stems:* The *Cheſs-nut*, *Aſh*, *&c.* multiply into *Poles*, which you may reduce to *Standards* at Pleaſure. To this I *add*, That as oft as you make your annual *Tranſplanting* out of the *Nurſery*, by drawing forth the choiceſt *Stocks*, the Remainder will be improved by a due ſtirring and turning of the *Mould* about their *Roots*.

Tranſplanting.

But that none be diſcouraged, who may upon ſome Accident be deſirous or forced to *tranſplant* Trees, where the partial or unequal Ground does not afford ſufficient Room or Soil to make the Pits equally capacious (and ſo apt to nouriſh and entertain the *Roots*, as where are no Impediments) the worthy Mr. *Brotherton* (whom we ſhall have occaſion to mention more than once in this Treatiſe) ſpeaking of the *Increaſe* and Improvement of *Roots*, tells us of a large *Pinaſter*, two Foot and a half *Diameter*, and about ſixty Foot in Height, the loweſt Boughs being thirty Foot above the Ground, which did ſpread and flouriſh on all Sides alike, though it had no *Root* at all towards *three Quarters* of its Situation, and but *one Quarter* only, into which it expanded its *Roots* ſo far as to ſeventy and eighty Foot from the Body of the Tree: The Reaſon was, its being planted juſt within the *Square Angle* of the Corner of a deep thick and ſtrong Stone-Wall, which was a kind *Wharfing* againſt a *River* running by it, and ſo could have Nouriſhment but from one Quarter. And this I likewiſe might confirm of two *Elms*, planted by me about thirty-five Years ſince; which being little bigger than *Walking-Staves*, and ſet on the very Brink of a Ditch or narrow Channel (not always full of Water) *wharfed* with a Wall of a Brick and half in Thickneſs (to keep the Bank from falling in) are ſince grown to goodly and equally ſpreading Trees, of near two Foot *Diameter* ſolid Timber, and of Stature proportionable. The Difference between *this*, and that of the *Pine*, being their having *one Quarter* more of Mould for the Roots to ſpread in; but which is not at all diſcovered by the Exuberance of the Branches in either Part. But to return to *Planting*, where are no ſuch Obſtacles.

6. *Theophraſtus*, in his third Book *de Cauſis*, Cap. vii. gives us great Caution in Planting, to preſerve the *Roots*, and eſpecially the *Earth* adhering to the ſmalleſt *Fibrils*, which ſhould by no Means be ſhaken off, as moſt of our *Gardeners* do, to trim and *quicken* them, as they pretend, which is to cut them ſhorter; though I forbid not a very ſmall *toping* of the ſtragling Threads, which may elſe hinder the ſpreading of the reſt, *&c.* Not at all conſidering, that thoſe tender *Hairs* are the very

Mouths

BOOK I. *Mouths* and *Vehicles* which ſuck in the Nutriment, and transfuſe it into all the Parts of the *Tree*, and that theſe once periſhing, the thicker and larger Roots, hard and leſs ſpungy, ſignifie little but to eſtabliſh the *Stem*; as I have frequently experimented in *Orange-Trees*, whoſe *Fibres* are ſo very obnoxious to rot, if they take in the leaſt Exceſs of Wet: And therefore *Cato* adviſes us to take Care that we bind the *Mould* about them, or transfer the *Roots* in *Baskets*, to preſerve it from forſaking them; as now our *Nurſery-men* frequently do, by which they of late are able to furniſh our Grounds, *Avenues* and *Gardens* in a Moment with Trees and other Plants, which would elſe require many Years to appear in ſuch Perfection: For this Earth being already applied, and fitted to the *Overtures* and *Mouths* of the *Fibres*, it will require ſome Time to bring them in *Appetite* again to a new *Mould*, by which to repair their Loſs, furniſh their *Stock*, and proceed in their wonted *Oeconomy* without manifeſt Danger and Interruption: Nor leſs ought our Care to be in the making and dreſſing of the *Pits* and *Foſſes* into which we deſign our *Tranſplantation*, which ſhould be prepared and left ſome Time *open* to macerating *Rains*, *Froſts* and *Sun*, that may reſolve the compacted *Salt* (as ſome will have it) render the Earth *friable*, mix and qualifie it for Aliment, and to be more eaſily drawn in and digeſted by the *Roots* and analogous *Stomach* of the *Trees:* This, to ſome Degree may be artificially done, by burning of *Straw* in the newly opened *Pits*, and drenching the *Mould* with *Water*, eſpecially in over-dry Seaſons, and by meliorating barren Ground with ſweet and comminuted *Lætations*. Let therefore this be received as a *Maxim*, never to plant a *Fruit* or *Foreſt-tree* where there has lately been an *old decay'd one* taken up, till the *Pit* be well *ventilated* and furniſh'd with freſh Mould.

7. The Author of the Natural Hiſtory, *Pliny*, tells us, it was a vulgar *Tradition* in his Time, that no *Tree* ſhould be removed under two Years old, or above three. *Cato* would have none *tranſplanted* leſs than five Fingers in *Diameter*; but I have ſhew'd why we are not to attend ſo long for ſuch as we raiſe of *Seedlings*. In the Interim, if theſe Directions appear too buſy or *operoſe*, or that the *Plantation* you intend be very ample, a more compendious *Method* will be the confuſed ſowing of *Acorns*, *&c.* in *Furrows*, two Foot aſunder, covered at three Fingers Depth, and ſo for three Years cleanſed, and the firſt *Winter* cover'd with Fern without any farther Culture, unleſs you *tranſplant* them: But as I ſhew'd before in *Nurſeries*, they would be cut an *Inch* from the Ground, and then let ſtand till *March* the ſecond Year, when it ſhall be ſufficient to *disbranch* them to *one* only Shoot, whether you ſuffer them to *ſtand*, or remove them elſewhere. But to make an *Eſſay* what *Seed* is moſt agreeable to the *Soil*, you may by the *thriving* of a promiſcuous *Semination* make a Judgment of

[a] *What each Soil bears, and what it does refuſe*;

Tranſplanting thoſe which you find leaſt agreeing with the *Place*; or elſe by *copſing* the *Starvelings* in the Places where they are newly ſown, cauſe them ſometimes to overtake even their untouch'd *Contemporaries*.

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[a] Quid quæque ferat regio, & quid quæque recuſet.

Some-

CHAP. II.

Something may here be expected about the fitteſt *Seaſon* for this Work of *Tranſplanting*; of which having ſpoken in another * *Treatiſe* annex'd to this (as well as in divers other Places throughout this of *Foreſt-trees*) I ſhall need add little, after I have recommended the earlieſt *Removals*, not only of all the ſturdy Sort in our *Woods*, but even of ſome leſs tender Trees in our Orchards, *Pears*, *Apples*, *Vulgar Cherries*, &c. whilſt we favour the delicate and tender *Murals*, and ſuch as are *pithy*, as the *Wall-nut*, and ſome others. But after all, what ſays the plain *Wood-man*, ſpeaking of *Oaks*, *Beech*, *Elms*, *Hawthorns*, and even what we call *wild* and *Hedge-Fruit?* "Set them, "ſays he, at *All-hallontide*, and *command* them to proſper; ſet them "at *Candlemas*, and *intreat* them to grow". Nor needs it Explanation.

* *Pomona*, Chap. vi.

8. But here ſome may enquire what *Diſtances* I would generally aſſign to *tranſplanted Trees?* To this ſomewhat is ſaid in the enſuing *Periods*, and as Occaſion offers; though the promiſcuous riſing of them in *Foreſt-work*, *wild* and *natural*, is to us, I acknowledge, more pleaſing than all the ſtudied Accuracy in ranging of them; unleſs it be where they conduct and lead us to *Avenues*, and are planted for *Viſtas* (as the *Italians* Term is) in which Caſe, the Proportion of the *Breadth* and *Length* of the *Walks*, &c. ſhould govern, as well as the Nature of the *Tree*; with this only Note, That ſuch Trees as are rather apt to ſpread than mount (as the *Oak*, *Beech*, *Wall-nut*, &c.) be diſpoſed at *wider* Intervals than the *other*, and ſuch as grow beſt in *Conſort*, as the *Elm*, *Aſh*, *Lime-tree*, *Sycamore*, *Fir*, *Pine*, &c. Regard is likewiſe to be had to the Quality of the *Soil*, for this Work: *V. G.* If *Trees* that affect *cold* and *moiſt* Grounds be planted in *hot* and *dry* Places, then ſet them at *cloſer* Order; but *Trees* which love *dry* and thirſty Grounds, at farther *Diſtance*. The like Rule may alſo guide in Situations expoſed to impetuous *Winds* and other Accidents, which may ſerve for general *Rules* in this Piece of *Tactics*. In the mean Time, if you plant for *Regular Walks*, or any ſingle Trees, a competent Elevation of the Earth in *Circle*, and made a little hollow like a ſhallow *Baſon* (as I already mention'd) for the Reception of Water, and refreſhing the Roots, ſticking *Thorns* about the Edges, to protect them from *Cattle*, were not amiſs. *Fruit-trees* thus planted, if *Beans* be ſet about them, produces a little *Crop*, and will ſhade the Surface, perhaps without any Detriment: But this more properly belongs to *Pomona*. Moſt Shrubs of *Ever-green*, and ſome Trees may be planted very near one another: *Myrtles*, *Laurel*, *Bays*, *Cyprus*, *Yew*, *Ivy*, *Pomegranates* and others, alſo need little Diſtance, and indeed whatever is proper to make *Hedges*: But for the *Oak*, *Elm*, *Wall-nut*, *Firs*, and the taller Timber-Trees, let the diſmal Effects of the late *Hurricane* (never to be forgotten) *caution* you never to plant them too near the *Manſion* (or indeed any other Houſe) that ſo if ſuch Accident happen, their Fall and Ruin may not reach them.

9. To leave nothing omitted which may contribute to the Stability of our *tranſplanted Trees*, ſomething is to be premiſed concerning their *Staking*, and ſecuring from external Injuries, eſpecially from *Winds* and *Cattle*; againſt both which, ſuch as are planted in *Copſes*, and for ample *Woods*, are ſufficiently defended by the *Mounds* and their cloſer Order; eſpecially if they riſe of *Seed*: But where they are expoſed in *ſingle* Rows, as in *Walks* and *Avenues*, the moſt effectual Courſe is to *empale* them with three good Quarter *Stakes* of competent Length,

Book I. ſet in *triangle*, and made faſt to one another by ſhort Pieces above and beneath; in which a few *Brambles* being ſtuck, ſecure it abundantly, without that choaking or fretting, to which *Trees* are obnoxious that are only ſingle *ſtaked* and *buſhed*, as the vulgar Manner is: Nor is the *Charge* of this ſo conſiderable, as the great *Advantage*, accounting for the frequent Reparations which the other will require. Where *Cattle* do not come, I find a good Piece of *Rope*, tied faſt about the Neck of *Trees* upon a *Wiſp* of *Straw*, to preſerve it from galling, and the other End tightly ſtrein'd to a *Hook* or a *Peg* in the Ground (as the *Shrouds* in *Ships* are faſtened to the *Maſts*) ſufficiently ſtabliſhes my *Trees* againſt the weſtern Blaſts without more Trouble; for the Winds of other *Quarters* ſeldom infeſt us. But theſe *Cords* had need be well *pitch'd*, to preſerve them from Wet, and ſo they will laſt many Years. I cannot in the mean Time conceal what a noble Perſon has aſſured me, That in his goodly *Plantations* of Trees in *Scotland*, where they are continually expoſed to much greater and more impetuous *Winds* than we were uſually acquainted with, he never *ſtakes* any of his Trees, but upon all Diſaſters of this Kind, cauſes only his Servants to redreſs, and ſet them up again as often as they happen to be overthrown; which he has affirm'd to me, thrives better with them, than with thoſe which he has *ſtaked*; and that at laſt they ſtrike root ſo faſt, as nothing but the *Ax* is able to proſtrate them. And their is good Reaſon for it in my Opinion, whilſt theſe *Concuſſions* of the *Roots* looſning the Mould, not only make room for their more eaſy Inſinuations, but likewiſe open and prepare it to receive and impart the better Nouriſhment. It is in another Place I ſuggeſt, that tranſplanted *Pines* and *Firs*, for want of their penetrating *Tap-roots*, are hardly conſiſtent againſt theſe *Guſts* after they are grown high; eſpecially where they are ſet cloſe, and in *Tufts*, which betrays them to the greater Diſadvantage: And therefore ſuch Trees do beſt in *Walks*, and at competent *Diſtances*, where they eſcape tolerably well: Such therefore as we deſign for *Woods* of them, ſhould be ſow'd and never remov'd. In the mean Time, many Trees are alſo propagated by *Cuttings* and *Layers*; the *Ever-greens* about *Bartholomew-tide*; other Trees within two or three Months after, when they will have all the *Sap* to aſſiſt them: Every Body knows the Way to do it, is by ſlitting the *Branch* a little way, when it is a little cut *directly* in, and then to plunge it half a Foot under good Mould, and leaving as much of its Extremity above it, and if it comply not well, to peg it down with an *Hook* or two, and ſo when you find it competently *rooted*, to cut it off beneath, and plant it forth. Other Expedients there are, by *twiſting* the Part, or *baring* it of the *Rind*; and if it be out of reach of the Ground, to faſten a *Tub* or *Basket* of *Earth* near the *Branch*, fill'd with a ſucculent Mould, and kept as freſh as may be. For *Cuttings*, about the ſame Seaſon, take ſuch as are about the bigneſs of your *Thumb*, ſetting them a *Foot* in the *Earth*, and near as much out. If it be of ſoft Wood, as *Willows*, *Poplar*, *Alders*, &c. you may take much larger *Trunchions*, and ſo tall as *Cattle* may not reach them; if *harder*, thoſe which are young, ſmall and more tender; and if ſuch as produce a *Knur*, or *burry* Swelling, ſet that Part into the Ground, and be ſure to make the *Hole* ſo wide, and point the End of your *Cutting* ſo ſmooth, as that in ſetting, it violate and ſtrip none of the *Bark*; the other Extream may be ſlanted, and ſo treading the *Earth* cloſe, and keeping it *moiſt*, you will ſeldom fail of Succeſs:

By

By the *Roots* alſo of a thriving luſty and ſappy Tree, more may be propagated; to effect which, early in *Spring*, dig about its *Foot*, and finding ſuch as you may with a little cutting bend upwards, raiſe them above Ground three or four Inches, and they will in a ſhort Time make *Shoots*, and be fit for *Tranſplantation*; or in this Work you may quite ſeparate them from the Mother-*Roots*, and cut them off: By *baring* likewiſe the bigger *Roots* diſcreetly, and hacking them a little, and then covering with freſh Mould *Matres* and Mother-Roots, *Nepotes*, Succours, *Traduces* and rooted Setts, may be raiſed in abundance; which drawing competent *Roots*, will ſoon furniſh ſtore of Plants; and this is practicable in *Elms* eſpecially, and all ſuch Trees as are apt of themſelves to put forth *Suckers*; but of this more upon Occaſion * hereafter. And now to prevent *Cenſure* on this tedious and prolix *Introduction*, I cannot but look on it as the *Baſis* and Foundation of all the *Structure*, riſing from this *Work* and *Endeavour* of mine; ſince from *Station*, *Sowing*, continual *Culture* and *Care*, proceed all we really enjoy in the World: Every Thing muſt have *Birth* and Beginning, and afterwards, by Diligence and prudent Care, form'd and brought to Shape and Perfection. Nor is it enough to caſt *Seeds* into the Ground, and leave them there, as the *Oſtrich* does her *Eggs* in the *Lybian* Sands, without minding them more (becauſe *Nature* has depriv'd her of Underſtanding) but great Diligence is to be uſed in *governing* them, not only till they ſpring up, but till they are arriv'd to ſome *Stature* fit for *Tranſplantation*, and to be ſent *Abroad*; after the ſame Method that our *Children* ſhould be *educated*, and taken Care of from their *Birth* and *Cradle*; and afterwards, whilſt they are under *Padagogues* and Diſcipline (for the forming of their Manners and Perſons) that they contract no ill *Habits*, and take ſuch *Plys* as are ſo difficult to rectifie and *ſmooth* again without the greateſt Induſtry. For Prevention of this in our *Seminary*, the like Care is requiſite; whilſt the young *Imps* and *Seedlings* are yet tender and flexible, and require not only different Nouriſhment and Protection from too much *Cold*, *Heat*, and other Injuries, but due and skilful Management in *dreſſing*, *redreſſing* and *pruning*, as they grow capable of being brought into Shape, and of hopeful Expectation, when Time has rendred them fit for the Uſe and Service requir'd, according to their Kinds. He therefore that undertakes the *Nurſery*, ſhould be knowing not only in the *Choice* of the *Seeds*, *where*, *when*, and *how* to ſow them; but to know what Time of *Geſtation* they require in the *Womb* of their *Mother-Earth* before *Parturition*; that ſo he may not be ſurprized with her delivering ſome of them *ſooner*, or *later* than he expects them; for ſome will lie *two*, nay *three* Years, e'er they peep; moſt others *One*, and ſome a *Quarter*, or a *Month* or two; whilſt the *tardy* and leſs forward ſo tire the Hopes of the *Huſbandman*, that he many times digs up the Plats and Beds in which they were ſown, deſpairing of a Crop, ſometimes ready to ſpring and come up, as I have found by Experience to my Loſs: Thoſe of hard *Shell* and *Integument* will lie longer buried than others; for ſo the *Libanus Cedar*, and moſt of the *Coniferous Firs*, *Pines*, &c. ſhed their *Seeds* late, and ſometimes remain two *Winters* and as many *Summers*, to open their *Scales* glued ſo faſt together, without ſome external Application of *Fire* or *warm Water*, which is yet not ſo natural as when they open of themſelves. The ſame may be obſerved of ſome *minuter* Seeds, even among the *Olitories*; as that of *Parſley*, which will hardly ſpring in

* For the tranſplanting and removing of full-grown *Foreſt-Trees*, and others, See *Chap.* iii. §. 10.

Book I. in leſs than a Year; ſo *Beet-ſeed*, part in the *ſecond* and *third*, &c. which upon inſpecting the Skins and *Membranes* involving them, would be hard to give a Reaſon for. To *accelerate* this, they uſe *Imbibitions* of piercing *Spirits*, *Salts*, *Emollients*, &c. not only to the *Seeds*, but to the *Soil*, which we ſeldom find much ſignify, but either to produce *Abortion* or *Monſters*; and being forc'd to *haſty* Birth, become nothing ſo hardy, healthful and laſting, as the *Conception* and *Birth* they receive from *Nature*. Theſe *Obſervations* premiſed in *general*, after I have *recommended* to our induſtrious *Planters* the *Appendix* or *Table* of the ſeveral Sorts of *Soil* and *Places* that are *proper*, or at leaſt may ſeem ſo; or that are *unfit* for certain Kinds of *Trees* (as well *Foreſters* and others, annex'd to this *Work*) I ſhould proceed to *Particulars*, and boldly advance into the thickeſt of the *Foreſt*, did not *Method* ſeem to require ſomething briefly to be ſpoken of *Trees* in *general*, as they are under the Name of *Plants* and *Vegetables*, eſpecially ſuch as we ſhall have occaſion to diſcourſe of in the following Work; though we alſo take in ſome leſs vulgarly known and familiar, of late indenizon'd among us, and ſome of them very uſeful.

By *Trees* then is meant, a *lignous* woody *Plant*, whoſe Property is for the moſt Part, to grow up and erect it ſelf with a ſingle *Stem* or *Trunk*, of a thick and more compacted Subſtance and Bulk, branching forth large and ſpreading Boughs; the whole Body and external Part, cover'd and inveſted with a thick Rind or *Cortex*, more hard and durable than that of other Parts; which, with expanding *Roots*, penetrate and fixes them in the Earth for Stability (and according to their Nature) receive and convey Nouriſhment to the Whole: And theſe *Terræ-filii* are what we call *Timber-Trees*, the chief Subject of our following Diſcourſe.

Trees are likewiſe diſtinguiſh'd into other *ſubordinate Species*, *Fruticis*, *Frutages* and *Shrubs*; which are alſo *lignous* Trees, though of a lower and humbler Growth, leſs ſpreading, and riſing up in ſeveral Stems, emerging from the ſame *Root*, yielding Plenty of *Suckers*; which being ſeparated from it, and often carrying with them ſome ſmall Fibre, are eaſily propagated and planted out for a numerous Store: And this (being clad with a more tender *Bark* or *Fibre*) ſeems to differ the *Frutex* from other *arborious* Kinds; ſince as to the *Shaft* and Stems of ſuch as we account *Dwarf* and *Pumilo* with us, they riſe often to tall and ſtately Trees, in the more genial and benign Climes.

Suffrutrices are *Shrubs* lower than the former, *ligneſcent* and more approaching to the ſtalky Herbs, *Lavender*, *Rue*, &c. but not apt to decay ſo ſoon, after they have ſeeded; whilſt both theſe Kinds ſeem alſo little more to differ from one another, than do *Trees* from them; all of them conſiſting of the ſame Variety of Parts, according to their Kinds and Structure, cover'd with ſome woody hard *membraneous* or tender Rind, ſuitable to their Conſtitution, and to protect them from outward Injuries; producing likewiſe *Buds*, *Leaves*, *Bloſſoms* and *Flowers*, pregnant with *Fruit*, and yielding *Saps*, *Liquors* and *Juices*, *Lachrymæ*, *Gums*, and other *Exſudations*, though diverſifying in *Shape* and *Subſtance*, *Taſt*, *Odour*, and other *Qualities* and *Operations*, according to the Nature of the *Species*; the various Structure and Contexture of their ſeveral Veſſels and *Organs*, whoſe Office it is to ſupply the whole Plant with all that is neceſſary to its *Being* and *Perfection*, after a *ſtupendious*, though *natural*, Proceſs; which minutely,

to deſcribe, and *analogically* compare, as they perform their Functions (not altogether ſo different from Creatures of *animal Life*) would require an *Anatomical Lecture*; which is ſo learnedly and accurately done to our Hands by Dr. *Grew*, *Malphigius*, and other ingenious Naturaliſts.

But beſides this *general Definition*, as to what is meant by *Trees*, *Frutexes*, &c. They are likewiſe *ſpecifically* diſtinguiſh'd by other *Characters*, *Leaves*, *Buds*, *Bloſſoms*, &c. but eſpecially by what they produce of more Importance, by their *Fruit* ye ſhall know them: *V. G.*

The *Glandiferæ*, *Oaks* and *Ilex's* yield *Acorns*, and other uſeful *Excreſcencies*: The *Maſt-bearers* are the *Beech*, and ſuch as include their Seeds and Fruit in rougher Husks; as the *Cheſnut*-Tree, *&c.* The *Wallnut*, *Hazle*, *Avelans*, &c. are the *Nuciferæ*, &c. To the *Coniferæ*, *Reſiniferæ*, *Squammiferæ*, &c. belong the whole Tribe of *Cedars*, *Firs*, *Pines*, &c. *Apples*, *Pears*, *Quinces*, and ſeveral other *Edulæ* Fruits; *Peaches*, *Abricots*, *Plums*, &c. are reduc'd to the *Pomiferæ*: The *Bacciferæ*, are ſuch as produce *Kernels*, *Sorbs*, *Cherries*, *Holley*, *Bays*, *Laurel*, *Yew*, *Juniper*, *Alder*, &c. and all the *Berry-bearers*. The *Geniſtæ* in general, and ſuch as bear their *Seeds* in *Cods*, come under the Tribe of *Siliquoſæ*: The *Lanuginæ* are ſuch as bed their *Seeds* in a *cottony Down*.

The *Aſh*, *Elm*, *Tilia*, *Poplar*, *Hornbeam*, *Willow*, *Salices*, &c. are diſtinguiſh'd by their *Keys*, *Tongues*, *Samera*, *Pericurpia* and *Theca*, ſmall, flat and husky Skins, including the *Seeds*, as in ſo many *Foliols*, Bags and Purſes, fine *membranous* Caſes, *Catkins*, *Palms*, *Julus's*, &c. needleſs to be farther mention'd here, being ſo particularly deſcrib'd in the *Chapters* following; as are alſo the various *Evergreens* and *Exoticks*.

CHAP. III.

Of the Oak.

1. ROBUR, the *Oak*; I have ſometimes conſider'd it very ſeriouſly, what ſhould move *Pliny* to make a whole *Chapter* of *one* only *Line*, which is leſs than the *Argument* alone of moſt of the reſt in his huge *Volume:* But the Weightineſs of the *Matter* does worthily excuſe him, who is not wont to ſpare his *Words*, or his *Reader*. *Glandiferi maximè generis omnes, quibus honos apud Romanos perpetuus.* "*Maſt-*" *bearing-Trees were principally thoſe which the* Romans *held in chief-*" *eſt Repute.* Lib. xvi. Cap. iii. And in the following, where he treats of *Chaplets*, and the Dignity of the *Civic Coronet*, it might be compoſed of the *Leaves* or *Branches* of any *Oak*, provided it were a *bearing* Tree, and had *Acorns* upon it, and was (as * *Macrobius* tells us) recorded among the *felices Arbores*; but this φυλλινὸν στέφανον was interwoven, and twiſted with *Thorns* and *Briars*; and the *Garland* carried to uſher the *Bride* to her Husband's Houſe, intimating *that* happy State was not exempt from its *Pungencies* and Cares. It is then for the Eſteem which theſe *wiſe* and glorious *People* had of this *Tree* above all others, that I will firſt begin with the *Oak*; and indeed it carries it from all other *Timber* whatſoever, for building of *Ships* in general,

* *Saturn.* lib. xi. cap. xvi.

BOOK I. and in particular being tough, bending well, ſtrong and not too heavy, nor eaſily admitting Water.

2. 'Tis pity that the ſeveral Kinds of *Oak* are ſo rarely known amongſt us, that where-ever they meet with *Quercus*, they take it promiſcuouſly for our *common Oak*; as likewiſe they do Δρῦς, which comprehends all *Maſt-bearing* Trees whatſoever (which I think they have no *Latin* Word for) And in the *Silva Glandifera* were reckon'd the *Cheſnut*, *Ilix*, *Eſculus*, *Cerris*, *Suber*, &c. various *Species* rather than different Trees, *white*, *red*, *black*, &c. among our *American* Plantations (eſpecially the *long-ſtalked* Oak, not as yet much taken Notice of) We ſhall here therefore give an Account of *four* only; *two* of which are moſt frequent with us; for we ſhall ſay little of the *Cerris* or *Ægilops*, goodly to look on, but for little elſe: Some have miſtaken it for *Beech*, whereas indeed it is a Kind of *Oak* bearing a ſmall round *Acorn* almoſt covered with the *Cup*, which is very rugged, the Branches loaded with a long *Moſs* hanging down like diſhevel'd Hair, which much annoys it. Φάγος is indeed doubtleſs a Species of *Oak*; however by the *Latins* uſually apply'd to the *Beech*, whoſe Leaf exceedingly differs from that of the *Oak*, as alſo the *Maſt* and *Bark* rugged, and growing among the Hills and Mountains; the other in the Valleys, and perhaps but few of them in *Italy*. *Phyſicians*, *Naturaliſts* and *Botaniſts* ſhould therefore be curious how they deſcribe and place ſuch Trees, mention'd by *Theophraſtus* and others, under the ſame *Denomination* as frequently they do; being found ſo very different when accurately examin'd. There is likewiſe the *Eſculus*, which though *Vitruvius*, *Pliny*, *Dalcampius* and others take for a ſmaller Kind, *Virgil* celebrates for its ſpreading, and profound *Root*; and this *Dalcampius* will therefore have to be the *Platyphyllos* of *Theophraſtus*, and as our *Botaniſts* think, his *Phegos*, as producing the moſt edible Fruit. But to confine our ſelves; the *Quercus Urbana*, which grows more upright, and being clean and lighter is fitteſt for *Timber*: And the *Robur*, or *Quercus Silveſtris*, (taking *Robur* for the general Name, if at leaſt *contradiſtinct* from the reſt) which (as the Name imports) is of a vaſt *robuſt* and inflexible Nature, of an hard black *Grain*, bearing a ſmaller *Acorn*, and affecting to ſpread in *Branches*, and to put forth his *Roots* more above Ground; and therefore in the Planting, to be allow'd a greater Diſtance, *viz.* from *twenty-five*, to *forty Foot* (nay, ſometimes as many *Yards*) whereas the other ſhooting up more erect, will be contented with *fifteen*. This Kind is farther to be diſtinguiſhed by its fullneſs of *Leaves*, which *tarniſh*, and becoming yellow at the *Fall*, do commonly cloath it all the *Winter*; the Roots growing very deep and ſtragling. The Author of *Britannia Baconica*, ſpeaks of an *Oak* in *Lanhadron*-Park in *Cornwall*, which bears conſtantly Leaves ſpeckled with white; and of another, call'd the *pointed Oak*: Others have ſince been found at *Fridwood*, near *Sittingbourn* in *Kent*; as alſo *Sycamore* and *Elms*, in other Places mentioned by the learned Dr. *Plot* in his *Natural Hiſtory* of *Oxfordſhire*; which I only mention here, that the Variety may be compar'd by ſome ingenious Perſon thereabouts, as well as the Truth of the fatal *Præ-admonition*, of *Oaks* bearing ſtrange Leaves: Beſides that famous *Oak* of *New Foreſt* in *Hampſhire*, which puts forth its Buds about *Chriſtmas*, but wither'd again before Night; and was order'd (by our late King *Charles* II.) to be inclos'd with a *Pale* (as I find it mentioned in the laſt Edition of Mr. *Camden's Britannia*)

And ſo was *another* before this, which his *Grandfather*, King *James* went to viſit, and cauſed *Benches* to be plac'd about it; which giving it Reputation, the People never left hacking of the Boughs and Bark till they kill'd the Tree; as I am told, they have ſerv'd that *famous Oak* near *White-Ladys*, which hid and protected our late *Monarch* from being diſcovered and taken by the *Rebel-Soldiers*, who were ſent to find him, after his almoſt miraculous Eſcape at the Battel of *Worceſter*. In the mean Time, as to this extraordinary *Precoſeneſs*, the like is reported of a certain *Wallnut-tree*, as well as of the famous *White-thorns* of *Glaſſenbury*, and *Blackthorns* in ſeveral Places. Some of our common *Oaks* bear their Leaves *green* all Winter, but they are generally *Pollards*, and ſuch as are ſhelter'd in warm Corners and Hedge-rows. To ſpeak then particularly of *Oaks*, and *generally* of all other Trees of the ſame Kind (by ſome infallible *Characters*) Notice ſhould be taken of the Manner of their *Spreading*, *Stature* and *Growth*, *Shape* and *Size* of the *Acorn*, whether *Single* or in *Cluſters*, the *Length* or *Shortneſs* of the *Stalks*, *Roundneſs* of the *Cup*, *Breadth*, *Narrowneſs*, *Shape* and *Indentures* of the *Leaf*; and ſo of the *Bark*, Τεῖχος, *aſperous* or *ſmooth*, *brown* or *bright*, &c. Though moſt (if not all of them) may rather be imputed to the *Genius* and Nature of the *Soil*, *Situation*, or Goodneſs of the *Seed*, than either to the pretended *Sex* or *Species*. And theſe Obſervations may ſerve to diſcover many accidental Varieties in other Trees, without nicer Diſtinctions; ſuch as are fetch'd from profeſſed *Botaniſts*; who make it not ſo much their Study to *plant* and *propagate* Trees, as to Skill in their *Medicinal* Virtues, and other Uſes; always *excepting* our learned Countryman Mr. *Ray*, whoſe incomparable Work omits nothing uſeful or deſirable on this Subject; wanting only the Accompliſhments of well-deſigned *Sculps*. There is likewiſe a Kind of *Hemeris* or *Dwarf-Oak* (like the *Robur vij. Cluſii*) frequent in *New-England*; and the White one of *Virginia*, a moſt ſtately Tree, which (bearing *Acorns*) might eaſily be propagated here, if it were worth the while.

3. I ſhall not need to repeat what has already been ſaid, *Chap.* ii. concerning the *raiſing* of this Tree from the *Acorn*; they will alſo endure the *laying*, but never to Advantage of Bulk or Stature: It is in the mean Time the Propagation of theſe large ſpreading *Oaks*, which is eſpecially recommended for the Excellency of the *Timber*, and that his *Majeſty's* Foreſts were well and plentifully ſtored with them; becauſe they require *Room* and Space to amplifie and expand themſelves, and would therefore be planted at more remote Diſtances, and free from all Incumbrances: And this upon Conſideration, how *ſlowly* a full grown *Oak* mounts upwards, and how *ſpeedily* they ſpread, and dilate themſelves to all *Quarters*, by Dreſſing and due Culture; ſo as above *forty Years* Advance is to be gain'd by this only Induſtry: And if thus his *Majeſty's* Foreſts and Chaſes were ſtored, *viz.* with this *ſpreading Tree* at handſome *Intervals*, by which *Grazing* might be improved for the feeding of *Deer* and *Cattle* under them (for ſuch was the old *Saltus*) benignly viſited with the *Gleams* of the *Sun*, and adorned with the diſtant *Landskips* appearing through the Glades and frequent Valleys;

a ——*betwixt*

[a] (————————————*betwixt*
Whoſe Rows the azure Sky is ſeen immix'd
With Hillocks, Vales *and* Fields, *as now we ſee*
Diſtinguiſh'd in a ſweet Variety;
Such Places which wild Apple-trees *throughout*
Adorn, and happy Shrubs *grow all about*)

As the *Poet* deſcribes his *Olive-Groves*, nothing could be more raviſhing; for ſo we might alſo ſprinkle *Fruit-trees* amongſt them (of which hereafter) for *Cyder*, and many ſingular Uſes, and ſhould find ſuch goodly *Plantations* the boaſt of our *Rangers*, and *Foreſts* infinitely preferable to any Thing we have yet beheld, *rude* and *neglected* as they are: I ſay, when his *Majeſty* ſhall proceed (as he hath *deſigned*) to animate this laudable Pride into Faſhion, *Foreſts* and *Woods* (as well as *Fields* and *Incloſures*) will preſent us with another Face than now they do. And here I cannot but applaud the worthy Induſtry of old Sir *Harbotle Grimſtone*, who (I am told) from a very ſmall *Nurſery* of *Acorns*, which he ſowed in the neglected Corners of his Ground, did draw forth ſuch Numbers of *Oaks* of competent Growth, as being planted about his *Fields* in even and uniform Rows, about one hundred Foot from the *Hedges*, buſh'd and well water'd till they had ſufficiently fixed themſelves, did wonderfully improve both the Beauty and the Value of his *Demeſnes*. But I proceed,

4. Both theſe *Kinds* would be taken up very young, and *tranſplanted* about *October*; ſome yet for theſe hardy and late ſpringing *Trees*, defer it till the Winter be well over; but the Earth had need be moiſt; and though they will grow tollerably in moſt Grounds, yet do they generally affect the *ſound*, *black*, *deep* and *faſt* Mould, rather warm than over wet and cold, and a little *riſing*; for this produces the firmeſt *Timber*; though my Lord *Bacon* prefers that which grows in the moiſter Grounds for *Ship-timber*, as the moſt tough, and leſs ſubject to *rift*. But let us hear *Pliny*: "This is a general Rule, *ſaith he*; What "Trees ſoever they be which grow tollerably, either on *Hills* or *Val-* "*leys*, ariſe to greater Stature, and ſpread more amply in the *lower* "*Ground*: But the *Timber* is far better, and of a finer *Grain*, which "grows upon the *Mountains*, excepting only *Apple* and *Pear-trees*." And in *Cap.* xxxix. *Lib.* xvi. "The *Timber* of thoſe Trees which "grow in *moiſt* and *ſhady* Places is not ſo good as that which comes from "a more expoſed Situation, nor is it ſo cloſe, ſubſtantial and durable: "Upon which he much prefers the *Timber* growing in *Tuſcany*, be- "fore that towards the *Venetian* Side, and upper Part of the *Gulph*." And that *Timber* ſo grown, was in greateſt Eſteem long before *Pliny*, we have the *Spear* of *Agamemnon*——ἔχων ἀνεμοτρεφὲς ἔγχος. Il. λ. * from a Tree ſo expoſed; and *Didymus* gives the Reaſon, Τὰ γὰρ ἐν ἀνέμῳ (ſays he) πλεῖον γυμναζόμενα δένδρα στερέα, &c. *For that being continually Weather-beaten, they become hardier and tougher*: Otherwiſe, that which is *Wind-ſhaken*, never comes to good; and therefore when we ſpeak of the *Climate*, 'tis to be underſtood of *Valleys* rather than

* *See what* Voſſius *has written in his Obſervations on* Catullus, p. 204. *Indomitus turbo contorquens flamine*——

[a] (Cærula diſtinguens inter plaga currere poſſet
Per tumulos, & convalles, compoſque profuſa:
Ut nunc eſſe vides vario diſtincta lepôre
Omnia, quæ pomis interſita dulcibus ornant
Arbuſtiſque tenent felicibus obſita circum,) LUCRET. *l.* v.

than *Hills*, and in *calm* Places, than *expoſed*, becauſe they ſhoot ſtreight and upright. The Reſult of all is, that upon Occaſion of ſpecial *Timber*, there is a very great and conſiderable Difference; ſo as ſome *Oaken-Timber* proves manifeſtly weaker, more ſpungy, and ſooner decaying than other. The like may be affirm'd of *Aſh*, and other Kinds; and generally ſpeaking, the *cloſe-grained* is the ſtouteſt and moſt permanent: But of this, let the Induſtrious conſult that whole *tenth Chapter* in the *ſecond Book* of *Vitruvius*, where he expreſly treats of this Argument, *De Abiete ſupernate & infernate, cum Apennini deſcriptione:* Where we note concerning *Oak*, that it neither proſpers in very *hot*, nor exceſſive *cold* Countries; and therefore there is little good of it to be found in *Africa*, or indeed, the lower and moſt ſouthern Parts of *Italy* (but the *Venetians* have excellent *Timber*) nor in *Denmark* or *Norway* comparable to ours; it chiefly affecting a temperate *Climate*, and where they grow naturally in abundance, 'tis a promiſing Mark of it. If I were to make Choice of the *Place*, or the *Tree*, it ſhould be ſuch as grows in the beſt *Cow-Paſture*, or Up-land *Meadow*, where the *Mould* is rich and ſweet (*Suffolk* affords an admirable Inſtance) and in ſuch *Places* you may alſo *tranſplant* large *Trees* with extraordinary Succeſs: And therefore it were not amiſs to bore and ſearch the Ground where you intend to plant or ſow, before you fall to work; ſince Earth too *ſhallow* or *rocky* is not ſo proper for this *Timber*; the *Roots* fix not kindly, and though for a Time they may ſeem to flouriſh, yet they will dwindle: In the mean Time, 'tis wonderful to conſider how ſtrangely the *Oak* will penetrate to come to a *marly* Bottom; ſo as where we find this Tree to proſper, the Indication of a fruitful and excellent Soil is certain, even by the Token of this natural *Augury* only; ſo as by the Plantation of this Tree and ſome others, we have the Advantage of Profit rais'd from the Pregnancy, Subſtance and Depth of our Land; whilſt by the *Graſs* and *Corn* (whoſe Roots are but a few Inches deep) we have the Benefit of the Cruſt only.

5. But to diſcourage none, *Oaks* proſper exceedingly even in Gravel and moiſt *Clays*, which moſt other Trees abhor; yea, even the coldeſt *Clay*-Grounds that will hardly graze: But theſe *Trees* will frequently make *Stands*, as they encounter Variety of Footing, and ſometimes proceed again vigorouſly, as they either penetrate beyond, or out-grow their Obſtructions, and meet better Earth; which is of that Conſequence, that I dare boldly affirm, more than an *hundred* Years Advance is clearly gained by *Soil* and *Husbandry*. I have yet read, that there grow *Oaks* (ſome of which have contained ten Loads apiece) out of the very Walls of *Silceſter* in *Hantſhire*, which ſeem to ſtrike Root in the very Stones; and even in our renowned *Foreſt* of *Dean* it ſelf, ſome goodly *Oaks* have been noted to grow upon Ground, which has been as it were a *Rock* of ancient *Cinders*, buried there many Ages ſince. It is indeed obſerved, that *Oaks* which grow in rough *ſtony* Grounds, and obſtinate *Clays*, are long before they come to any conſiderable Stature (for ſuch Places, and all ſort of *Clay*, is held but a *Step-Mother* to *Trees*) but in Time they afford the moſt excellent *Timber*, having ſtood long, and got good *Footing*. The ſame may we affirm of the *lighteſt* Sands, which produces a ſmoother-grain'd *Timber*, of all other the moſt uſeful for the *Joyner*; but that which grows in *Gravel* is ſubject to be *frow* (as they term it) and brittle. What Improvement the *ſtirring* of the Ground about the Roots of *Oaks* is to the

Book I. *Trees*, I have already hinted; and yet in *Copſes*, where they ſtand *warm*, and ſo thickned with the *Under-wood*, as this Culture cannot be practiſed, they prove in Time to be goodly Trees. I have of late tried the *Graffing* of *Oaks*, but as yet with ſlender Succeſs: *Ruellius* indeed affirms it will take the *Pear* and other *Fruit*; and if we may credit the *Poet*,

[a] *The ſturdy Oak does golden Apples bear:*

[b] *And under* Elms *Swine do the Maſt devour.*

Which I conceive to be the more probable, for that the *Sap* of the *Oak* is of an unkind Tincture to moſt Trees. But for this Improvement, I would rather adviſe *Inoculation*, as the ordinary *Elm* upon the *Witch-Hazel*, for thoſe large *Leaves* we ſhall anon mention, and which are ſo familiar in *France*.

6. That the tranſplanting of young *Oaks* gains them *ten* Years *Advance*, ſome happy Perſons have affirmed: From this Belief, if in a former *Impreſſion* I have deſired to be excuſed, and produced my Reaſons for it, I ſhall not perſiſt againſt any ſober Man's *Experience*; and therefore leave this *Article* to their Choice, ſince (as the *Butchers* Phraſe is) Change of *Paſture* makes fat *Calves*; and ſo *Tranſplantations* of theſe hard Wood-trees when young, may poſſibly, by an happy Hand, in fit Seaſon, and other Circumſtances of *Soil*, *Sun*, and *Room* for Growth, be an Improvement: But as for thoſe who adviſe us to plant *Oaks* of too great a Stature, they hardly make any conſiderable Progreſs in an *Age*; and therefore I cannot encourage it, unleſs the Ground be extraordinarily qualified, or that the *Oak* you would *tranſplant*, be not above ſix or ſeven Foot growth in Height: Yet if any be deſirous to make *Tryal* of it, let their *Stems* be of the ſmootheſt and tendereſt *Bark*; for that is ever an Indication of *Youth*, as well as the Paucity of their *Circles*, which in disbranching and cutting the Head off, at *five* or *ſix* Foot Height (a Thing, by the Way, which the *French* uſually ſpare when they *tranſplant* this *Tree*) may (before you ſtir their *Roots*) ſerve for the more certain *Guide*; and then plant them immediately, with as much Earth as will adhere to them, in the Place deſtined for their *Station*; abating only the * *Tap-Root*, which is that down-right, and ſtubby Part of the *Roots* (which all *Trees* raiſed of *Seeds* do univerſally produce) and *quickning* ſome of the reſt with a ſharp *Knife* (but ſparing the *Fibrous*, which are the main *Suckers* and *Mouths* of all *Trees*) ſpread them in the *Foſs*, or *Pit*, which hath been prepared to receive them: I ſay in the *Foſs*, unleſs you will rather *trench* the whole *Field*, which is incomparably the beſt, and infinitely to be preferred before narrow *Pits* and *Holes* (as the Manner is) in Caſe you plant any Number conſiderable, the Earth being hereby made *looſe*, *eaſier* and *penetrable* for the *Roots*, about which you are to caſt that *Mould*, which (in opening of the *Trench*) you took from the *Surface*, and purpoſely laid a-part; becauſe it is ſweet, mellow, and better *impregnated*. But in this *Work*, be circumſpect never to *inter* your *Stem* deeper than you found it ſtanding; for profound *burying* very frequently deſtroys a *Tree*, though an *Error* ſeldom obſerved: If therefore the

* *Which yet ſome, upon good Experience, will not allow in tranſplanting young* Oaks; *affirming the taking them up without any Abatement, or the leaſt Wound, does exceedingly advance the Growth of this Tree above ſuch as are deprived of it.*

[a] ——— Aurea duræ
Mala ferant quercus. *Ecl.* viii.

[b] Glandemque ſues fregere ſub Ulmo. *Georg.*

Roots

Roots be ſufficiently covered to keep the *Body* ſteady and erect, it is enough; and the not minding of this trifling *Circumſtance*, does very much deceive our ordinary *Wood-men*, as well as *Gardiners*; for moſt *Roots* covet the *Air* (though that of the *Quercus Urbano* leaſt of any) for like the *Eſculus*, CHAP. III.

[a] *How much to Heaven her tow'ring Head aſcends,*
So much to'ards Hell her piercing Root extends.

And the Perfection of *that*, does almoſt as much concern the Proſperity of a *Tree*, as of *Man* himſelf, ſince *Homo* is but *Arbor inverſa*; which prompts me to this *curious*, but important, *Advertiſement*, that the *Poſition* be likewiſe ſedulouſly obſerved.

7. For the Southern Parts being more *dilated*, and the *Pores* expoſed (as evidently appears in their *horizontal Sections*) by the conſtant *Excentricity* of the *hyberbolical Circles* of all *Trees* (ſave juſt under the *Æquator*, where the *Circles* concentre, as we find in thoſe hard Woods which grow there) ours being now on the *ſudden*, and at ſuch a Seaſon converted to the *North*, does *ſtarve* and deſtroy more *Trees* (how careful ſoever Men have been in ordering the *Roots*, and preparing the *Ground*) than any other *Accident* whatſoever (neglect of *ſtaking*, and *defending* from *Cattle* excepted) the Importance whereof cauſed the beſt of *Poets*, and moſt experienced in this *Argument*, giving Advice concerning this *Article*, to add,

[b] *The Card'nal Points upon the Bark they ſign,*
And as before it ſtood, in the ſame Line
Place to warm South, or the obverted Pole:
Such Force has Cuſtom in each tender Soul.

Which *Monition*, though *Pliny* and ſome others think good to neglect or eſteem *indifferent*, I can confirm from frequent Loſſes of my own, and by particular *Tryals*; having ſometimes *tranſplanted* great Trees at *Midſummer* with Succeſs (the *Earth* adhering to the *Roots*) and miſcarried in others, where this *Circumſtance* only was omitted.

To obſerve therefore the *Coaſt* and Side of the *Stock* (eſpecially of *Fruit-trees*) is not ſuch a Trifle as by ſome pretended: For if the *Air* be as much the *Mother* or *Nurſe*, as *Water* and *Earth* (as more than probable it is) ſuch bloſſoming *Plants* as court the Motion of the *Meridian Sun*, do, as 'twere, evidently point out the Advantage they receive by their *Poſition*, by the Clearneſs, Politure, and comparative Splendor of the *South-ſide*: And the frequent *Moſſineſs* of moſt Trees on the oppoſite Side, does ſufficiently note the Unkindneſs of that *Aſpect*; moſt evident in the *Bark* of *Oaks* white and ſmooth; the Trees growing more kindly on the *South-ſide* of an *Hill*, than thoſe which are expoſed to the *North*, with an hard, dark, rougher and more moſſie *Integument*, as I can now demonſtrate in a prodigious Coat of it, inveſting ſome *Pyracanths* which I have removed to a *Northen* dripping Shade. I have ſeen (writes a worthy Friend to me on this Occaſion)

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[a] ———Quæ quantum vertice ad auras
Ætherias, tantum radice in Tartara tendit. *Geor. l.* ii.

[b] Quinetiam Cœli regionem in cortice ſignant,
Ut quo quæque modo ſteterit, quâ parte calores
Auſtrinos tulerit, quæ terga obverterit axi,
Reſtituant: Adeo in teneris conſueſcere multum eſt. *Geor. l.* i.

whole

Book I. whole *Hedge-rows* of *Apples* and *Pears*, that quite periſh'd after that Shelter was removed: The good *Husbands* expected the contrary, and that the *Fruit* ſhould improve, as freed from the *Prædations* of the Hedge; but Uſe and Cuſtom made that Shelter neceſſary; and therefore (ſaith he) a *Stock* for a Time is the weaker, taken out of a *Thicket*, if it be not well protected from all ſudden and fierce Invaſions, either of crude *Air* or *Winds*. Nor let any be deterr'd, if being to remove many *Trees*, he ſhall eſteem it too conſumptive of Time; for with a Bruſh dipped in any white Colour or *Oaker*, a thouſand may be marked as they ſtand, in a Moment; and that once done, the Difficulty is over. I have been the larger upon theſe two *Remarks*, becauſe I find them ſo material, and yet ſo much neglected.

8. There are other *Rules* concerning the *Situation* of *Trees*; the former *Author* commending the *North-Eaſt Wind* both for the Flouriſhing of the *Tree*, and Advantage of the *Timber*; but to my Obſervation in our *Climates*, where thoſe ſharp *Winds* do rather *flanker* than blow fully oppoſite upon our *Plantations*, they thrive beſt; and there are as well other Circumſtances to be conſidered, as they reſpect *Rivers* and *Marſhes* obnoxious to unwholſome and poiſonous *Fogs*, *Hills* and *Seas*, which expoſe them to the Weather; and thoſe *ſilvifragi Venti*, our cruel and tedious *weſtern* Winds; all which I leave to Obſervation, becauſe theſe *Accidents* do ſo univerſally govern, that it is not eaſy to determine farther, than that the *Timber* is commonly better qualified, which hath endured the *colder* Aſpects without theſe Prejudices. And hence it is that *Seneca* obſerves, *Wood* moſt expoſed to the *Winds* to be the moſt *ſtrong* and *ſolid*; and that therefore *Chiron* made *Achilles*'s Spear of a *Mountain Tree*; and of *thoſe* the *beſt*, which grow thin, not much ſhelter'd from the *North*. Again, *Theophraſtus* ſeems to have ſpecial Regard to *Places*; exemplifying in many of *Greece*, which exceed others for good *Timber*, as doubtleſs do our *Oaks* in the *Foreſt* of *Dean* all others of *England*: And much certainly there may reaſonably be attributed to theſe Advantages for the Growth of *Timber*, and of almoſt all other *Trees*, as we daily ſee by their general Improſperity, where the Ground is a *hot Gravel*, and a *looſe Earth*. An *Oak* or *Elm* in ſuch a Place, ſhall not in an *hundred Years*, overtake *one* of *fifty*, planted in its *proper* Soil; though next to this, and (haply) before it, I prefer the good *Air*. But thus have they ſuch vaſt *Junipers* in *Spain*; and the *Aſh* in ſome Parts of the *Levant* (as of old near *Troy*) ſo excellent, as it was after miſtaken for *Cedar*, ſo great was the Difference; as now the *Cantabrian*, or *Spaniſh*, exceeds any we have elſewhere in *Europe*. And we ſhall ſometimes in our own *Country* ſee *Woods* within a little of each other, and, to all Appearance, growing on the ſame Soil, where *Oaks* of twenty Years Growth or forty, will, in the ſame Bulk, contain their Double in *Heart* and *Timber*; and that in *one*, the *Heart* will not be ſo big as a Man's *Arm*, when the *Trunk* exceeds a Man's *Body*. This ought therefore to be weighed in the firſt Plantation of *Copſes*, and a good *Eye* may diſcern it in the firſt Shoot; the Difference proceeding doubtleſs from the Variety of the Seed; and therefore great Care ſhould be had of its Goodneſs, and that it be gathered from the beſt Sort of Trees, as was formerly hinted, *Chap.* i.

9. *Veterem Arborem Tranſplantare*, was ſaid of a difficult Enterprize: Yet before we take leave of this Paragraph, concerning the *Tranſplanting* of great Trees, and to ſhew what is poſſible to be *effected* in this

Kind, with Coſt and Induſtry; Count *Maurice* (the late Governour of *Braſil* for the *Hollanders*) planted a *Grove* near his delicious *Paradiſe* of *Friburgh*, containing ſix Hundred *Coco-trees* of *eighty* Years Growth, and *fifty* Foot high to the neareſt Bough: Theſe he wafted upon *Floats* and *Engines*, four long Miles; and planted them ſo luckily, that they bare abundantly the very firſt Year; as *Gaſper Barlæus* hath related in his elegant Deſcription of that Prince's Expedition. Nor hath this only ſucceeded in the *Indies* alone; Monſieur *de Fiat* (one of the *Mareſchals* of *France*) hath with huge *Oaks* done the like at *Fiat*. Shall I yet bring you nearer Home? A Great Perſon in *Devon*, planted *Oaks* as big as twelve *Oxen* could draw, to ſupply ſome Defect in an *Avenue* to one of his Houſes; as the Right Honourable the Lord *Fitz-Harding*, late *Treaſurer* of His *Majeſty's Houſhold*, aſſured me; who had himſelf likewiſe practiſed the *removing* of great *Oaks* by a particular Addreſs extreamly Ingenious, and worthy the Communication. CHAP. III.

10. Chooſe a *Tree* as big as your *Thigh*, remove the Earth from about him; cut through all the *collateral* Roots, till with a competent Strength you can enforce him down upon one Side, ſo as to come with your *Ax* at the *Top-root*; cut *that* off, redreſs your *Tree*, and ſo let it ſtand covered about with the *Mould* you looſened from it, till the next Year, or longer if you think good; then take it up at a fit Seaſon; it will likely have drawn new tender Roots apt to take, and ſufficient for the *Tree*, whereſoever you ſhall *tranſplant* him. Some are for laying bare the whole *Roots*, and then dividing it into four Parts, in Form of a *Croſs*, to cut away the interjacent *Rootlings*, leaving only the *Croſs* and Maſter-Roots, that were ſpared to ſupport the Tree; and then covering the Pit with freſh Mould (as above) after a Year or two, when it has put forth, and furniſhed the *Interſtices* you left between the *Croſs-roots*, with Plenty of new *Fibres* and tender Shoots, you may ſafely remove the Tree it ſelf, ſo ſoon as you have looſened and reduced the four *decuſſeted* Roots, and ſhortened the *Top-roots*: And this Operation is done without ſtooping or bending the Tree at all: And if in removing it, with as much of the Clod about the new Roots as poſſible, it would be much the better.

BOOK I.

A, *The* Trunk, *or Body of the Tree, next the Ground; which is the* Centre *of the* Croſs Maſter-Roots, b b b b, *growing from the old Stock,* c c c *the ſmaller* Roots *and* Fibres *emerging from thoſe* Croſs-Roots, *which are to be cut off diſcreetly, ſparing a few of the tendereſt.*

d, *Shewing how they all are to be cleanſed between the* Interſtices, *cut cloſe to the* Croſs, *or* Star-Roots.

Pliny notes it as a common Thing, to re-eſtabliſhed huge *Trees*, which have been blown down, Part of their Roots torn up, and the Body proſtrate; and, in particular, of a *Fir*, that when it was to be *tranſplanted*, had a *Top-root* which went no leſs than *eight* Cubits *perpendicular*; and to theſe I could ſuper-add (by woful Experience) where ſome *Oaks*, and other old Trees of mine, tore up with their Fall and Ruin, Portions of Earth (in which their former ſpreading Roots were engaged) little leſs in Bulk and Height than ſome ordinary Cottages and Houſes, built on the Common: Such Havock was the Effect of the late prodigious *Hurricane*. But to proceed. To facilitate the *Removal* of ſuch monſtrous *Trees*, for the *Adornment* of ſome particular *Place*, or the Rarity of the *Plant*, there is this farther *Expedient*: A little before the hardeſt *Froſts* ſurprize you, make a ſquare *Trench* about your *Tree*, at ſuch Diſtance from the *Stem* as you judge ſufficient for the *Root*; dig this of competent Depth, ſo as almoſt quite to undermine it, by placing *Blocks* and *Quarters* of Wood, to ſuſtain the *Earth*; this done, caſt in as much *Water* as may fill the *Trench*, or at leaſt ſufficiently wet it, unleſs the Ground were very moiſt before. Thus let it ſtand, till ſome very hard *Froſt* do bind it firmly to the *Roots*, and then convey it to the *Pit* prepared for its new Station, which you may preſerve from *freezing*, by laying Store of warm *Litter* in it, and ſo cloſe the Mould the better to the ſtragling *Fibres*, placing what you take out about your new Gueſt, to preſerve it in Temper: But in Caſe the Mould about it be ſo *ponderous* as not to be removed by an ordinary Force; you may then raiſe it with a *Crane* or *Pully*, hanging between a *Triangle* (or like *Machine*) which is made of three ſtrong and tall *Limbs* united at the Top, where a *Pully* is faſtened, as the *Cables* are to be under the Quarters which bear the Earth about the *Roots*: For by this Means you may weigh up, and place the whole weighty *Clod* upon a *Trundle*, *Sledge*, or other *Carriage*, to be conveyed and *replanted* where you pleaſe, being let down perpendicularly into the Place by the Help of the aforeſaid *Engine*: And by this *Addreſs* you may *tranſplant* Trees of a wonderful *Stature* without the leaſt Diſorder; and many Times without *topping*, or Diminution of the *Head*, which is of great Importance, where this is practiſed to ſupply a *Defect*, or remove a *Curioſity*.

11. Some adviſe, that in planting of *Oaks*, &c. *four* or *five* be ſuffered to ſtand very near to one another, and then to leave the moſt *proſperous*, when they find the reſt to diſturb his Growth; but I conceive it were better to plant them at ſuch Diſtances, as they may leaſt incommode one another: For *Timber-trees*, I would have none nearer than *forty* Foot, where they ſtand *cloſeſt*; eſpecially of the ſpreading Kind.

12. *Laſtly*, Trees of ordinary Stature *tranſplanted* (being firſt well *watered*) muſt be ſufficiently *ſtaked* and *buſhed* about with *Thorns*, or with ſomething better, to protect them from the Concuſſions of the *Winds*, and

and from the caſual *rubbing*, and poiſonous brutting of *Cattle* and *Sheep*, the *Oylineſs* of whoſe *Wool* is alſo very noxious to them; till being well *grown* and *fixed* (which by *ſeven* Years will be to ſome competent Degree) they ſhall be able to withſtand all accidental *Invaſions*, but the *Ax*; for I am now come to their *Pruning* and *Cutting*, in which Work the *Seaſons* are of main Importance.

13. Therefore, if you would propagate *Trees* for *Timber*, cut not off their *Heads* at all, nor be too buſie with Lopping: But if you deſire *Shade* and *Fuel*, or bearing of *Maſt* alone, lop off their Tops, *ſear*, and unthriving *Branches* only: If you intend an outright *felling*, expect till *November*; for this *præmature* Cutting down of *Trees* before the *Sap* is perfectly at *reſt*, will be to your exceeding Prejudice, by Reaſon of the *Worm*, which will certainly breed in *Timber* which is felled before that Period: But in caſe you cut only for the *Chimney*, you need not be ſo punctual as to the Time; yet for the Benefit of what you let *ſtand*, obſerve the *Moon*'s Increaſe if you pleaſe. The Reaſon of theſe Differences is, becauſe *this* is the beſt Seaſon for the *Growth* of the Tree which you do not fell, the *other* for the *Durableneſs* of the Timber which you *do*: Now that which is to be *burnt* is not ſo material for *laſting*, as the *Growth* of the Tree is conſiderable for the *Timber*: But of theſe Particulars more at large in *Chap.* iii. *Book* iii.

14. The very *Stumps* of *Oak*, eſpecially that Part which is dry, and above Ground, being well *grubb'd*, is many Times worth the Pains and Charge, for ſundry *rare* and *hard* Works; and where *Timber* is dear. I could name ſome, who abandoning this to *Workmen* for their *Pains* only, when they perceived the great Advantage, repented of their Bargain, and undertaking it themſelves, were Gainers above half: I wiſh only for the Expedition of this *knotty* Work, ſome effectual *Engine* were deviſed; ſuch as I have been told a worthy Perſon of this Nation made uſe of, by which he was able with *one Man*, to perform more than with *twelve Oxen*; and ſurely, there might be much done by faſtning of *Iron-Hooks* and *Fangs* about one Root, to extract another; the *Hook* chained to ſome portable *Screw* or *Winch*: I ſay, ſuch an Invention might effect Wonders, not only for the Extirpation of Roots, but the proſtrating of huge Trees: That ſmall *Engine*, which by ſome is called the *German Devil*, reformed after this Manner, and duly applied, might be very expedient for this Purpoſe; and therefore we have exhibited the following Figure, and ſubmit it to Improvement and Trial.

a, *The* Hand *that keeps the* Rope b, *close upon the* Cylinder c, *which is moved by a* Pinnion *of three or four Teeth* d, *which moves a large* Iron-Wheel f, e, *the* Handle *put upon the* Spindle *of the* Pinnion, *to turn it withal.*

The whole Frame *is let into a bigger Piece of Wood*, viz. h, *being about four Foot in Length, and one in Breadth; and the other End of the* Roller, *or* Cylinder, *is sustained by a lesser* Block *of Wood* (i) g, *the* Plate *which holds the* Wheel *and* Pinnion *in the larger* Block. *Note,*

That the Cylinder *may be made of good tough* Iron, *about four Inches in* Diameter, *and fourteen or sixteen Inches in* Length, *and the toothed* Wheel f, *of the like Stuff, and of a Thickness proportionable: The rest is obvious.*

But this is to be practised only where you design a final *Extirpation*; for some have drawn *Suckers* even from an old *stub Root*, but they certainly perish by the *Moss* which invades them, and are very subject to grow rotten. *Pliny* speaks of one *Root*, which took up an entire *Acre* of Ground, and *Theophrastus* describes the *Lycean Platanus* to have spread an hundred Foot; if so, the *Argument* may hold good for their Growth after the *Tree* is come to its Period. They made *Cups* of the Roots of *Oaks* heretofore; and such a Curiosity *Athenæus* tells us

was

was carved by *Thericleus* himſelf; and there is a Way ſo to tinge *Oak*, after long burying and ſoaking in *Water* (which gives it a wonderful *Poliſure*) as that it has frequently been taken for a coarſe *Ebony*: Hence even by *Floating*, comes the *Bohemian* Oak, *Poliſh* and other *Northern* Timber, to be of ſuch excellent Uſe for ſome Parts of *Shipping*: But the *Blackneſs* which we find in *Oaks*, that have long lain under Ground (and may be call'd *Subterranean Timber*) proceeds from ſome *Vitriolic* Juice of the Bed in which they lie, which makes it very weighty; but (as the excellent Naturaliſt and learned *Phyſician* Dr. *Sloane* obſerves) it dries, ſplits, and becomes light, and much impairs. CHAP. III.

15. There is not in *Nature* a Thing more obnoxious to *Deceit*, than the buying of Trees *ſtanding*, upon the Reputation of their *Appearance* to the *Eye*, unleſs the *Chapman* be extraordinarily judicious; ſo various are their hidden and concealed *Infirmities*, till they be *felled* and *ſawn* out: So as if to any Thing *applicable*, certainly there is nothing which does more perfectly confirm it, than the moſt flouriſhing *Outſide* of Trees, *Fronti nulla fides*. A *Timber-tree* is a *Merchant-Adventurer*, you ſhall never know what he is worth till he be dead.

16. *Oaks* are in ſome Places (where the Soil is *eſpecially* qualified) ready to be cut for *Copſe* in *fourteen* Years and ſooner; I compute from the firſt *Semination*; though it be told as an Inſtance of high Encouragement (and as indeed it merits) that a *Lady* in *Northampton-ſhire* ſowed *Acorns*, and lived to cut the *Trees* produced from them, *twice* in *two* and *twenty Years*, and both as well grown as moſt are in *ſixteen* or *eighteen*. This yet is certain, that *Acorns* ſet in *Hedge-rows*, have in thirty Years born a *Stem* of a Foot *Diameter*. Generally *Copſe-wood* ſhould be cut *cloſe*, and at ſuch *Intervals* as the Growth requires; which being ſeldom conſtant, depends much on the *Places* and the *Kinds*, the *Mould* and the *Air*, and for which there are extant particular *Statutes* to direct us; of all which more at large hereafter. *Oak* for *Tan-bark* may be felled from *April* to the laſt of *June*, by a *Statute in the* 1 *Jacobi*. And here ſome are for the *disbarking* of *Oaks*, and ſo to let them ſtand before they fell.

17. To enumerate now the incomparable *Uſes* of this *Wood*, were needleſs; but ſo precious was the Eſteem of it, that of *old* there was an expreſs *Law* amongſt the *twelve Tables*, concerning the very gathering of the *Acorns*, though they ſhould be found fallen into another Man's Ground: The *Land* and the *Sea* do ſufficiently ſpeak for the Improvement of this excellent Material; *Houſes* and *Ships*, *Cities* and *Navies* are built with it; and there is a *Kind* of it ſo *tough*, and extreamly compact, that our ſharpeſt *Tools* will hardly enter it, and ſcarcely the very *Fire* it ſelf, in which it conſumes but ſlowly, as ſeeming to partake of a *ferruginous* and *metalline* ſhining Nature, proper for ſundry robuſt Uſes. It is doubtleſs of all *Timber* hitherto known, the moſt univerſally uſeful and ſtrong; for though ſome *Trees* be harder, as *Box*, *Cornus*, *Ebony*, and divers of the *Indian Woods*; yet we find them more fragil, and not ſo well qualified to ſupport great Incumbencies and Weights, nor is there any Timber more *laſting*, which Way ſoever uſed. There has (we know) been no little Stir amongſt learned Men, of what Material the *Croſs* was made on which our Bleſſed *Saviour* ſuffered: *Venerable* Bede *in Collectaneis*, affirms it to have been framed of *ſeveral* Woods, namely, *Cypreſs*, *Cedar*, *Pine* and *Box*; and to USES.

Book I. confirm it, St. *Hierom* has cited *Iſaiah* vi. 13. *Gloria Libani ad te veniet, & Buxus & Pinus ſimul ad ornandum locum Sanctificationis meæ, & locum Pedum meorum ſignificabo*; but following the *Verſion* of the LXX, he reads *in Cupreſſo, Pinu & Cedro, &c.* Others inſert the *Palm*, and ſo compoſe the *Gibbet* of no leſs than *four* different *Timbers*, according to the old Verſe:

[a] *Nail'd were his Feet to* Cedar, *to* Palm *his Hands,*
Cypreſs *his Body bore, Title on* Olive *ſtands:*

And for this of the *Palm*, they fetch it from that of *Cant.* vii. 8. where 'tis ſaid, *Aſcendam in Palmam, & apprehendam fructus ejus*, and from other *allegorical* and *myſterious* Expreſſions of the ſacred *Text*, without any manner of Probability; whilſt by *Alphonſus Ciacconius*, *Lipſius*, *Angelus Rocca*, *Falconius*, and divers other learned Men (writing on this Subject) and upon accurate Examination of the many Fragments *pretended* to be Parcels of it, 'tis generally concluded to have been the *Oak*, and I do verily believe it; ſince thoſe who have deſcribed thoſe *Countries*, aſſure us there is no Tree more frequent; which (with Relation to ſeveral Celebrations and *Myſteries* under *Oaks* in the *Old Teſtament*) has been the Subject of many fine Diſcourſes. Nor is it likely they ſhould chooſe, or aſſemble ſo many Sorts of *Woods* with that Curioſity, to execute one upon, whom they eſteemed a *Malefactor*; beſides, we read how heavy it was, which *Cypreſs*, *Cedar* and *Palm* are not in Compariſon with *Oak*; whilſt *Gretſer* denies all this, *Lib.* i. *Cap.* vi. and concludes upon his accurate Examination of ſeveral Fragments yet extant, that 'tis not diſcernable of what *Timber* it was framed. We might add to theſe, the furious Zeal of the bloody and malicious *Jews* (to ſee our Bleſſed Lord inhumanly executed) could not poſſibly allow Leiſure to frame a *Gibbet* of ſo many rare and curious Materials: Let this therefore paſs for an errant *Legend.*

That which is *twined* and a little *wreathed* (eaſily to be diſcerned by the *Texture* of the *Bark*) is beſt to ſupport *Burthens* for *Poſts*, *Columns*, *Summers*, *&c.* for all which our *Engliſh Oak* is infinitely preferable to the *French*, which is nothing ſo *uſeful*, nor comparably ſo *ſtrong*; inſomuch as I have frequently admired at the ſudden failing of moſt goodly *Timber* to the *Eye*, which being employed to theſe *Uſes*, does many Times moſt dangerouſly fly in ſunder, as wanting that native *Spring* and *Toughneſs* which our *Engliſh Oak* is indued withal. And here we forget not the Streſs which Sir *H. Wotton*, and other *Architects* put even in the very *Poſition* of their Growth, their native Streightneſs and Loftineſs for *Columns*, *Supporters*, *Croſs-Beams*, *&c.* and 'tis found that the rough-grain'd Body of a *ſtubbed Oak*, is the fitteſt *Timber* for the *Caſe* of a *Cyder-Mill*, and ſuch like *Engines*, as beſt enduring the Unquietneſs of a ponderous Rolling-Stone. For *Shingles*, *Pales*, *Laths*, *Cooper*'s Ware, *Clap-board* for *Wainſcot* (the ancient * *Inteſtina Opera* and Works within Doors) and ſome *Pannels* are curiouſly veined, of much Eſteem in former Times, till the finer-grain'd *Spaniſh* and *Norway* Timber came amongſt us, which is likewiſe of a whiter Colour. There is in *New England* a certain *red Oak*, which

* And therefore were *Joyners* call'd *Inteſtinary*. See Leg. ii. *Cod. Theodoſ.*

[a] Quatuor ex lignis Domini *Crux* dicitur eſſe, *&c.*
Pes Crucis eſt *Cedrus*, Corpus tenet alta *Cupreſſus*;
Palma manus retinet, Titulo lætatur *Oliva*.

being

being felled, they ſeaſon in ſome moiſt and muddy Place, which branches into very curious Works. It is obſerved that *Oak* will not eaſily *glue* to other *Wood*, no not very well with its own Kind; and ſome Sorts will never cohere tollerably, as the *Box* and *Horn-beam*, though both hard Woods; ſo, nor *Service* with *Cornell*, &c. *Oak* is excellent for *Wheel-Spokes*, *Pins* and *Pegs* for *Tyling*, &c. Mr. *Blith* makes *Spars* and ſmall Building *Timber* of *Oaks* of eleven Years Growth, which is a prodigious Advance, *&c.* The ſmalleſt and ſtreighteſt is beſt, diſcovered by the upright *Tenor* of the *Bark*, as being the moſt proper for *cleaving:* The *knotttieſt* for *Water-Works*, *Piles*, and the like, becauſe 'twill drive beſt, and laſt longeſt; the crooked, yet firm, for *Knee-Timber* in *Shipping*, *Mill-Wheels*, &c. In a Word, how abſolutely neceſſary the *Oak* is above all the Trees of the Foreſt in *Naval-Architecture*, &c. conſult *Whitſon*, Lib. i. Cap. xiii. CHAP. III.

Were planting of theſe *Woods* more in Uſe, we ſhould baniſh our *Hoops* of *Hazel*, *&c.* for thoſe of good *Copſe-Oak*, which being made of the younger *Shoots*, are exceeding tough and ſtrong: *One* of them being of *Ground-Oak*, will out-laſt ſix of the beſt *Aſh*; but this our *Coopers* love not to hear of, who work by the *Great* for *Sale*, and for others. The ſmaller Trunchions and *Spray*, make *Billet*, *Bavine* and *Coals*; and the *Bark* is of Price with the *Tanner* and *Dyer*, to whom the very *Saw-duſt* is of Uſe, as are the *Aſhes* and *Lee* for *Bucking* Linnen, and to cure the *Ropiſhneſs* of *Wine:* And 'tis probable the *Cups* of our *Acorns* would *tan Leather* as well as the *Bark*, I wonder no Body makes the Experiment, as it is done in *Turky* with the *Valonia*, which is a Kind of *Acorn* growing on the *Oaks*. The *Ground-Oak* while young, is uſed for *Poles*, *Cudgels* and *Walking-Staffs*, much come into Mode of late, but to the *Waſt* of many a hopeful *Plant*, which might have proved good *Timber*; and I the rather declaim againſt the Cuſtom, becauſe I ſuſpect they are ſuch as are for the moſt Part cut and ſtolen by idle Perſons, and brought up to *London* in great Bundles, without the Knowledge or Leave of the *Owners*, who would never have gleaned their *Copſes* for ſuch trifling Uſes. Here I am again to give a general Notice of the peculiar Excellency of the *Roots* of moſt *Trees*, for fair, beautiful, *chamleted* and laſting *Timber*, applicable to many Purpoſes; ſuch as formerly made *Hafts* for *Daggers*, *Hangers*, *Knives*, *Handles* for *Staves*, *Tobacco-Boxes*, and elegant *Joyners-Work*, and even for ſome *Mathematical Inſtruments* of the larger Size, to be had either in, or near the *Roots* of many *Trees*; however 'tis a Kindneſs to premoniſh *Stewards* and *Surveyors*, that they do not negligently waſt thoſe *Materials:* Nor may we here omit to mention *Tables* for *Painters*, which heretofore were uſed by the moſt famous *Artiſts*, eſpecially the curious Pieces of *Raphael*, *Durer* and *Holbin*, and before that of *Canvaſs*, and much more laſting: To theſe add the *Galls*, *Miſletoe*, *Polypod*, *Agaric* (uſed in *Antidotes*) *Uvæ*, *Fungus*'s to make *Tinder*, and many other uſeful *Excreſcencies*, to the Number of above twenty, which doubtleſs diſcover the Variety of *Tranſudations*, *Percolations* and *Contextures* of this admirable *Tree*; but of the ſeveral *Fruits*, and *Animals* generated of them, and other Trees, *Franciſco Redi* promiſes an expreſs Treatiſe, in his *Eſperienze intorno alla Generatione de gl' Inſetti*, already publiſhed. *Pliny* affirms, That the *Galls* break out all together in one *Night*, about the Beginning of *June*, and arrive to their full Growth in one *Day*;

BOOK I. this I ſhould recommend to the Experience of ſome extraordinary vigilant *Wood-man*, had we any of our *Oaks* that produced them, *Italy* and *Spain* being the neareſt that do. *Galls* are of ſeveral Kinds, but grow upon a different *Species* of *Robur* from any of ours, which never arrive to any Maturity; the *white* and *imperforated* are the beſt; of all which, and their ſeveral *Species*, ſee *Jaſp. Bauhinus*, and the excellent *Malpighius*, in his Diſcourſe *de Gallis*, and other *morbous* Tumours, raiſed by, and producing *Inſects*, infecting the Leaves, Stalks and Branches of this Tree with a venomous Liquor or Froth, wherein they lay and depoſite their *Eggs*, which bore and perforate theſe *Excreſcences*, when the *Worms* are hatch'd, ſo as we ſee them in *Galls*.

What Benefit the *Maſt* does univerſally yield (once in two Years at leaſt) for the fatting of *Hogs* and *Deer*, I ſhall ſhew upon another Occaſion, before the Concluſion of this Diſcourſe. A Peck of *Acorns* a Day, with a little *Bran*, will make an *Hog* ('tis ſaid) increaſe a Pound Weight *per Diem* for two Months together. They give them alſo to *Oxen* mingled with *Bran*, chop'd or broken; otherwiſe they are apt to ſprout and grow in their Bellies. Others ſay, they ſhould firſt be macerated in Water, to extract their Malignity; *Cattle* many times periſhing without this Preparation. *Cato* adviſes the *Husbandman* to reſerve two hundred and forty *Buſhels* of *Acorns* for his *Oxen*, mingled with a like Quantity of *Beans* and *Lupines*, and to drench them well. But in Truth, they are more proper for *Swine*, and being ſo made ſmall, will fatten *Pidgeons*, *Peacocks*, *Turkeys*, *Pheaſants* and *Poultry*; nay, 'tis reported, that ſome *Fiſhes* feed on them, eſpecially the *Tunny*, in ſuch Places of the *Coaſt* where *Trees* hang over Arms of the *Sea*. *Acorns*, *Eſculus ab Eſca* (before the Uſe of *Wheat-Corn* was found out) were heretofore the *Food* of *Men*, nay, of *Jupiter* himſelf (as well as other *Productions* of the Earth) till their luxurious *Palates* were debauched: And even in the *Romans* Time, the Cuſtom was in *Spain* to make a *ſecond Service* of *Acorns* and *Maſt* (as the *French* now do of *Marrons* and *Cheſnuts*) which they likewiſe uſed to roaſt under the *Embers*.

[a] ——————*fed with the oaken Maſt,*
The aged Trees themſelves in Years ſurpaſs'd.

And Men had indeed *Hearts* of *Oak*; I mean, not ſo *hard*, but *Health* and *Strength*, and liv'd naturally, and with Things eaſily *parable* and plain.

[b] *Bleſt* Age *o'th'* World, *juſt* Nymph, *when* Man *did dwell*
Under thy Shade, whence his Proviſion fell;
Sallads *the* Meal, *Wildings were the Diſſert:*
No Tree yet learn'd, by ill-Example, Art,
With inſititious Fruit *to ſymbolize*,
As in an Emblem, *our* Adulteries.

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[a] ——————& quernâ glande repaſta
Æquâſſe annoſas vivendo copora Quercus.

[b] Fœlix illa ætas mundi, juſtiſſima Nymphe,
Cùm dabat umbra domum vivam tua, cùm domus ipſa
Deciduâ Dominos paſcebat fruge quietos,
Soláque præbebant Sylveſtria poma ſecundas
Gramineis epulas menſis; nondum arte magiſtra
Arbor Adulteriis præluſerat inſita noſtris, &c.
COULEII *Pl. l.* vi.

As

As the ſweet *Poet* beſpeaks the *Dryad*; and therefore it was not call'd *Quercus* (as ſome *Etymologiſts* fancied) becauſe the *Pagans* (*quæribantur Reſponſa*) had their *Oracles* under it, but becauſe they ſought for *Acorns*: But 'tis in another * Place where I ſhew you what this *Acorn* was; and even now I am told, that thoſe ſmall young *Acorns* which we find in the *Stock-Doves* Craws, are a delicious Fare, as well as thoſe incomparable *Salads* of young Herbs taken out of the *Maws* of *Partridges* at a certain Seaſon of the Year, which gives them a Preparation far exceeding all the Art of *Cookery*. *Oaks* bear alſo a *Knur* full of a *Cottony* Matter, of which they anciently made *Wick* for their *Lamps* and *Candles*; and among the *Selectiora Remedia* of *Jo. Prævotius*, there is mention of an Oil *è querna glande* chymically *extracted*, which he affirms to be of the longeſt Continuance, and leaſt conſumptive of any other whatſoever for ſuch Lights, *ita ut uncia ſingulis menſibus vix ab ſumatur continuo igne*: The ingenious Author of the Deſcription of the Weſtern *Iſlands* of *Scotland*, tells us, That (upon his own Experience) a Rod of *Oak* of four, five, ſix or eight Inches about, being twiſted like a *Wyth*, boiled in *Wort*, well dried, and kept in a little Bundle of Barley-Straw, and then ſteeped again in *Wort*, cauſes it to *ferment*, and procures *Yeſt*: The *Rod* ſhould be cut before *Mid-May*, and is frequently uſed in this manner to furniſh *Yeſt*, and being preſerved, will ſerve, and produce the ſame Effect many Years together; and (as the *Hiſtorian* affirms) that he was ſhew'd a Piece of a thick *Wyth*, which had been kept for making *Ale* with for above twenty Years, *&c.* In the mean Time, the *Leaves* of *Oaks* abundantly congeſted on *Snow*, preſerve it as well for *Wine*, as a deep *Pit*, or the moſt artificial *Refrigeratory*. Nor muſt we paſs by the ſweet *Mel-dews*, ſo much more copiouſly found on the Leaves of this Tree than any other; whence the induſtrious *Bees* gather ſuch abundance of *Honey*, as that inſtead of carrying it to their *Hives*, they glut themſelves to Death: But from this ill Report (haſtily taken up by *Euricius Cordus*) our learned Mr. *Ray* has vindicated this temperate and abſtemious uſeful Creature. *Varro* affirms, they made *Salt* of *Oak* Aſhes, with which they ſometimes ſeaſoned *Meat*, but more frequently made uſe of it to ſprinkle among, and fertilize their *Seed-Corn*: Which minds me of a certain *Oak* found buried ſome where in *Tranſilvania*, near the *Salt-Pits*, that was entirely converted into an hard *Salt*, when they came to examine it by cutting. This *Experiment* (if true) may poſſibly encourage ſome other Attempts for the multiplying of *Salt*: Nor leſs ſtrange is that which ſome report of a certain *Water* ſome where in *Hungary*, which tranſmutes the Leaves of this Tree into *Braſs*, and *Iron* into *Copper*. Of the *Galls* is made trial of *Spaw-water*, and the Ground and *Baſis* of ſeveral *Dies*, eſpecially ſadder Colours, and are a great Revenue to thoſe who have Quantities of them: Nor muſt I forget *Ink*, compoſed of *Galls* ℥iiij, *Copperas* ℥ij, *Gum-Arabic* ℥i: Beat the *Galls* groſly, and put them into a Quart of *Claret*, or *French-Wine*, and let them ſoak for eight or nine Days, ſetting the Veſſel (an earthen glazed Pitcher is beſt) in the hot Sun, if made in Summer; in Winter near the Fire, ſtirring it frequently with a wooden Spatula: Then add the *Copperas* and *Gum*, and after it has ſtood a Day or two, it will be fit to uſe. There are a world of Receipts more, of which ſee *Caneparius de Atramentis*. Of the very *Moſs* of the *Oak*, that which is *white*, compoſes the choiceſt *Cypreſs-Pow-*

* Cap. i. Book iii.

der,

der, which is eſteemed good for the Head; but *Impoſtors* familiarly vend other *Moſſes* under that Name, as they do the *Fungi* (excellent in *Hemorrhages* and *Fluxes*) for the true *Agaric*, to the great Scandal of *Phyſick*. Young red *oaken* Leaves decocted in *Wine*, make an excellent *Gargle* for a ſore *Mouth*; and almoſt every Part of this *Tree* is ſoveraign againſt *Fluxes* in general, and where *Aſtringents* are proper. The *Dew* that impearls the Leaves in *May*, inſolated, *meteorizes* and ſends up a *Liquor*, which is of admirable Effect in *Ruptures*: The *Liquor* iſſuing out between the *Bark* (which looks like *Treakle*) has many ſoveraign Vertues; and ſome affirm, the Water *ſtagnate* in the hollow Stump of a newly fell'd *Oak*, is as effectual as *Lignum Sanctum* in the Foul Diſeaſe, and alſo ſtops a *Diarrhœa*: And a *Water* diſtill'd from the *Acorns*, is good againſt the *Pthiſick*, *Stitch* in the Side, and heals inward *Ulcers*, breaks the *Stone*, and refrigerates *Inflammations*, being applied with Linnen dipp'd therein: Nay, the *Acorns* themſelves eaten faſting, kill the *Worms*, provoke *Urine*, and (ſome affirm) break even the *Stone* it ſelf. The *Coals* of *Oak* beaten and mingled with *Honey*, cures the *Carbuncle*; to ſay nothing of the *Viſcus's*, *Polypods*, and other *Excreſcences*, of which innumerable Remedies are compoſed, noble *Antidotes*, *Syrups*, *&c.* Nay, 'tis reported, that the very *Shade* of this *Tree* is ſo wholeſome, that the *ſleeping*, or lying under it, becomes a preſent *Remedy* to *Paralyticks*, and recovers thoſe whom the *miſtaken* malign Influence of the *Walnut-tree* has ſmitten: But what is ſtill more ſtrange, I read in one *Paulus*, a *Phyſician* of *Denmark*, That an Handful or two of ſmall *Oak* Buttons, mingled with *Oats*, given to *Horſes* which are *black* of *Colour*, will in few Days eating alter it to a fine *Dapple Grey*, which he attributes to the *Vitriol* abounding in this *Tree*. To conclude; And upon ſerious Meditation of the various Uſes of *this* and other *Trees*, we cannot but take Notice of the admirable *Mechaniſm* of *Vegetables* in general, as in particular in this *Species*; that by the Diverſity of *Percolations* and *Strainers*, and by *Mixtures*, as it were of Divine *Chymiſtry*, various *Concoctions*, *&c.* the *Sap* ſhould be ſo *green* on the indented *Leaves*, ſo luſtily *eſculent* for hardier and ruſtick Conſtitutions in the *Fruit*; ſo flat and pallid in the *Atramental Galls*; and haply, ſo *prognoſtick* in the *Apple*; ſo *ſuberous* in the *Bark* (for even the *Cork-tree* is but a coarſer *Oak*) ſo *ouzie* in the *Tanner's-Pit*; and in that Subduction ſo wonderfully *ſpecifick* in corroborating the *Entrails* and *Bladder*, *Reins*, *Loins*, *Back*, *&c.* which are all but the Gifts and Qualities, with many more, that theſe robuſt *Sons of the Earth* afford us; and that in other *Specificks*, even the moſt deſpicable and vulgar *Alder* imparts to us in its *Rind*, *Leaves*, *Buds*, *Bloſſoms*, *Berries*, *Ears*, *Pith*, *Bark*, *&c.* Which Hint may alſo carry our Remarks upon all the Varieties of *Shape*, *Leaf*, *Seed*, *Fruit*, *Timber*, *Grain*, *Colour*, and all thoſe other *Forms* that *Philoſophers* have enumerated; but which were here too many for us to repeat. In a Word, ſo great and univerſal is the Benefit and Uſe of this *Poly-Creſt*, that they have prohibited the tranſporting it out of *Norway*, where there grows abundance. Let us end with the Poet:

Of the Ilex *and* Cork (*reckon'd among the* Glandiferus) *ſee* Book ii. Cap v. *and of the ſacred and myſterious* Miſſelto, Book iii. Cap. i. *See alſo more of* Quercus, *Mr.* Ray's *Hiſt. Plan.* Tom. iii. Cap. de Quercus, Tom. ii. p. 1390.

a *When*

[a] *When* Ships *of bloody Combat we prepare,*
Oak *affords Plank, and arms our Men of War;*
Maintains our Fires, makes Ploughs to till the Ground:
For Uſe no Timber like the Oak *is found.*

CHAP. IV.

Of the Elm.

ELM.

1. ULmus the *Elm*, there are *four* or *five* Sorts, and from the Difference of the *Soil* and *Air* divers *ſpurious*: Two of theſe Kinds are moſt worthy our Culture, the Vulgar, *viz.* the *Mountain Elm*, which is taken to be the *Oriptelea* of *Theophraſtus*; being of a leſs jagged and ſmaller Leaf; and the *Vernacula*, or *French Elm*, whoſe Leaves are thicker, and more florid, *glabrous* and ſmooth, delighting in the lower and moiſter Grounds, where they will ſometimes riſe to above an hundred Foot in Height, and a prodigious Growth, in leſs than an *Age*; my ſelf having ſeen one planted by the Hand of a *Counteſs* living not long ſince, which was near twelve Foot in *Compaſs*, and of an *Height* proportionable; notwithſtanding the numerous Progeny which grew under the Shade of it, ſome whereof were at leaſt a Foot in *Diameter*, that for want of being ſeaſonably *tranſplanted*, muſt needs have hindered the Procerity of their ample and indulgent *Mother*: I am perſuaded ſome of theſe were *Viviradices & Traduces*, produced of the falling *Seeds*.

2. For though both theſe Sorts are raiſed of *Appendices*, or *Suckers*, (as anon we ſhall deſcribe) yet this latter comes well from the *Samera*, or *Seeds*, and therefore I ſuppoſe it to be the antient *Atinia*, for ſuch an *Elm* they acknowledge to be raiſed of *Seeds*, which being *ripe* about the beginning of *March* (though frequently not till the following Month) will produce them; as we might have ſeen abundantly in the *Gardens* of the *Thuilleries* and that of *Luxemburg* at *Paris*, where they uſually ſow themſelves, and come up very thick; and ſo do they in many Places of our Country, though ſo ſeldom taken notice of, as that it is eſteem'd a *Fable* by the leſs obſervant and ignorant Vulgar: Let it therefore be tried in Seaſon, by turning and raking ſome fine Earth, often refreſhed, under ſome amply ſpreading Tree, or to raiſe them of their *Seeds* (being well dried a Day or two before) ſprinkled on Beds prepared of good loamy freſh Earth, and ſifting ſome of the fineſt Mould thinly over them, and watering them when Need requires. Being riſen (which may be within four or five Months) an Inch above Ground (refreſhed and preſerved from the ſcraping of *Birds* and *Poultry*) comfort the tender Seedlings by a ſecond ſifting of more fine Earth, to eſtabliſh them; thus keep them clean *weeded* for the firſt *two Years*, and cleanſing the Side-boughs; or till being of fitting Stature to remove into a *Nurſery* at wider Intervals and even Rows, you may *thin* and *tranſplant* them in the ſame Manner as you were directed for young *Oaks*; only they

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[a] Si quando armandæ naves, & bella paranda,
Det quercus nautis tabulata, det arma furori
Bellantum; det ligna foco, det aratra colono
Aut aliis alios porro ſumatur in uſus.
RAPINUS.

ſhall

Book I. ſhall not need above one Cutting, where they grow leſs regular and hopeful. But becauſe this is an *Experiment* of ſome *Curioſity*, obnoxious to many Caſualties, and that the producing them from the *Mother-roots* of greater Trees is very facile and expeditious (beſides the Numbers which are to be found in the *Hedge-rows* and *Woods*, of all plantabe Sizes) I rather adviſe our *Foreſter* to furniſh himſelf from thoſe Places.

3. The *Suckers* which I ſpeak of, are produced in abundance from the *Roots*, whence being *dextrouſly* ſeparated, after the Earth has been well looſened, and planted about the End of *October*, they will grow very well; nay, the *Stubs* only, which are left in the Ground after a *Felling* (being fenced in as far as the *Roots* extend) will furniſh you with Plenty, which may be *tranſplanted* from the *firſt Year* or *two*, ſucceſſively, by ſlipping them from the *Roots*, which will continually ſupply you for many Years, after that the Body of the Mother-tree has been cut down: And from hence probably is ſprung that (I fear) Miſtake of *Salmaſius* and others, where they write of the growing of their *Chips* (I ſuppoſe having ſome of the Bark on) ſcatter'd in hewing of their *Timber*; the Error proceeding from this, that after an *Elm-tree* has been *fell'd*, the numerous *Suckers*, which ſhoot from the Remainders of the *latent* Roots, ſeem to be produced from this Diſperſion of the *Chips*: Let this yet be more accurately examined; for I pronounce nothing *mageſterially*, ſince it is ſo confidently reported.

4. I have known *Stakes* ſharpen'd at the Ends for other Purpoſes, take root familiarly in moiſt Grounds, and become Trees; and divers have eſſay'd, with extraordinary Succeſs, the *Trunchions* of the Boughs and Arms of *Elms* cut to the ſcantling of a Man's Arm, about an *Ell* in Length. Theſe muſt be chopp'd on each Side oppoſite, and laid into *Trenches* about half a Foot deep, covered about two or three Fingers deep with good Mould. The Seaſon for this Work is towards the *Exit* of *January*, or early in *February*, if the Froſts impede not; and after the firſt Year, you may cut or ſaw the *Trunchions* off in as many Places as you find Cauſe, and as the Shoots and rooted Sprouts will direct you for *Tranſplantation*. Another Expedient for the Propagation of *Elms* is this: Let *Trenches* be ſunk at a good Diſtance (*viz.* twenty or thirty Yards) from ſuch Trees as ſtand in *Hedge-rows*, and in ſuch Order as you deſire your *Elms* ſhould grow: Where theſe Gutters are, many young *Elms* will ſpring from the ſmall Roots of the adjoining Trees. Divide (after one Year) the Shoots from their Mother-roots (which you may dextrouſly do with a ſharp *Spade*) and theſe *tranſplanted*, will prove good Trees without any Damage to their Progenitors. Or do thus, lop a young *Elm*, the *Lop* being about three Years Growth; do it in the latter End of *March*, when the Sap begins to creep up into the Boughs, and the Buds ready to break out; cut the Boughs into Lengths of four Foot ſlanting, leaving the *Knot* where the *Bud* ſeems to put forth in the Middle: Inter theſe ſhort Pieces in *Trenches* of three or four Inches deep, and in good Mould well trodden, and they will infallibly produce you a Crop; for even the ſmalleſt *Suckers* of *Elms* will grow, being ſet when the Sap is newly ſtirring in them. There is yet a *fourth* Way no leſs expeditious, and frequently confirmed with excellent Succeſs; *Bare* ſome of the Maſter-Roots of a vigorous *Tree* within a Foot of the *Trunk*, or thereabouts, and with your *Ax* make ſeveral Chops, putting a ſmall Stone into every *Cleft*, to hinder their Cloſure, and give

Acceſs

Acceſs to the Wet; then cover them with three or four Inch-thick of Earth; and thus they will ſend forth Suckers in abundance (I aſſure you, one ſingle *Elm* thus well ordered, is a fair *Nurſery*) which after two or three Years you may ſeparate and plant in the *Ulmarium*, or Place deſigned for them; and which if it be in *Plumps* (as they call them) within ten or twelve Foot of each other, or in *Hedge-rows*, it will be the better: For the *Elm* is a Tree of Conſort, ſociable, and ſo affecting to grow in Company, that the very beſt which I have ever ſeen, do almoſt touch one another: This alſo protects them from the Winds, and cauſes them to ſhoot of an extraordinary *Height*; ſo as in little more than forty Years, they even arrive to a Load of *Timber*, provided they be ſedulouſly and carefully cultivated, and the Soil propitious. For an *Elm* does not thrive ſo well in the *Foreſt*, as where it may enjoy Scope for the Roots to dilate and ſpread at the Sides, as in *Hedge-rows* and *Avenues*, where they have the *Air* likewiſe free: Note, That they ſpring abundantly by *Layers* alſo.

5. There is beſides theſe Sorts we have named, *one* of a more *ſcabrous* harſh Leaf, but very large, which becomes an huge *Tree* (frequent in the Northern Counties) and is diſtinguiſhed by the Name of the *Witch-hazle* in our *Statute* Books, as ſerving formerly to make *long Bows* of; but the *Timber* is not ſo good as the *firſt* more vulgar; but the *Bark* at Time of Year, will ſerve to make a coarſe *Baſt-rope* with.

6. Of all the Trees which grow in our *Woods*, there is none which does better ſuffer the Tranſplantation than the *Elm*; for you may remove a Tree of twenty Years Growth with undoubted Succeſs: It is an Experiment I have made in a Tree almoſt as big as my Waiſt; but then you muſt totally *disbranch* him, leaving only the *Summit* entire; and being careful to take him up with as much Earth as you can, refreſh him with abundance of Water. This is an excellent and expeditious Way for Great Perſons to plant the *Acceſſes* of their Houſes with; for being diſpoſed at ſixteen or eighteen Foot *Interval*, they will in a few Years bear goodly Heads, and thrive to Admiration. Some that are very cautious, *emplaſter* the Wounds of ſuch over-grown *Elms* with a Mixture of *Clay* and *Horſe-dung*, bound about them with a Wiſp of *Hay* or fine *Moſs*, and I do not reprove it, provided they take Care to temper it well, ſo as the *Vermin* neſtle not in it. But for more ordinary Plantations, younger Trees, which have their *Bark* ſmooth and tender, clear of *Wenns* and *tuberous* Bunches (for thoſe of that Sort ſeldom come to be ſtately Trees) about the Scantling of your Leg, and their Heads trimmed at five or ſix Foot Height, are to be preferred before all other. *Cato* would have none of theſe Sorts of Trees to be removed till they are five or ſix Fingers in *Diameter*; others think they cannot take them too young; but Experience (the beſt *Miſtreſs*) tells us, that you can hardly Plant an *Elm* too big. There are who pare away the *Root* within two Fingers of the *Stem*, and quite cut off the *Head*; but I cannot commend this extream Severity, no more than I do the ſtrewing of *Oats* in the Pit; which *fermenting* with the Moiſture and frequent *Waterings*, is believed much to *accelerate* the putting forth of the *Roots*; not conſidering that for Want of *Air* they corrupt and grow muſty, which more frequently ſuffocates the *Roots*, and endangers the whole *Tree*.

7. I have affirmed how patient this *Tree* is of *Tranſplantation*; not only for that I obſerve ſo few of them to grow wild in *England*, and where it may not be ſuſpected, but they or their Predeceſſors have been planted by ſome induſtrious Hand; but for that, thoſe incomparable

Book I. *Walks* and *Viſtas* of them, both at *Aranjuez*, *Caſal del Campo*, *Madrid*, the *Eſcurial*, and other Places of Delight, belonging to the *King* and *Grandees* of *Spain*, are planted with ſuch as they report *Philip* the Second cauſed to be brought out of *England*; before which (as that moſt Honourable Perſon, the *Earl* of *Sandwich*, when his Majeſty's *Ambaſſador Extraordinary* at that Court, writ to me) it does not appear there were any of thoſe *Trees* in all *Spain*. But of that *Plantation*, ſee it more particularly deſcribed in *Chapter* VIII. *Book* III. of this Diſcourſe, whither I refer my *Reader:* Whilſt (as to my own Inclination) I know of no *Tree* amongſt all the *Foreſters*, becoming the almoſt *interminat Lontananza* of *Walks* and *Viſtas*, comparable to this majeſtick Plant: But let us hear it as ſweetly adviſed as deſcribed.

[a] *An* Elm *for graceful Verdure, buſhy Bough,*
A lofty Top, and a firm Rind allow.
Plant Elm *in Borders, on the Graſs-Plots Liſt,*
Branches of Elm *into thick* Arbours *twiſt;*
A Gallery of Elm *draw to the End,*
That Eyes can reach, or a breath'd Race extend.

8. The *Elm* delights in a *ſound*, *ſweet* and *fertile* Land, ſomething more inclined to *loamy* Moiſture, and where good Paſture is produced; though it will alſo proſper in the *gravelly*, provided there be a competent Depth of Mould, and be refreſhed with Springs; in Defect of which, being planted on the very Surface of the Ground (the *Swarth* pared firſt away, and the Earth ſtirred a Foot deep or more) they will undoubtedly ſucceed; but in this Trial, let the *Roots* be handſomely ſpread, and covered a Foot or more in Height, and above all, firmly ſtaked. This is practicable alſo for other Trees, where the Soil is overmoiſt or unkind: For as the *Elm* does not thrive in too *dry*, *ſandy*, or *hot* Grounds, no more will it abide the *cold* and *ſpungy*; but in Places that are competently fertile, or a little elevated from theſe Annoyances, as we ſee in the Mounds, and caſting up of Ditches, upon whoſe Banks the Female Sort does more naturally delight; though it ſeems to be ſo much more addicted to *ſome* Places than to *others*, that I have frequently doubted, whether it be a pure *Indigene* or *Tranſlatitious*; and not only becauſe I have hardly ever known any conſiderable *Woods* of them (beſides ſome few *Nurſeries* near *Cambridge*, planted I ſuppoſe for Store) but almoſt continually in *Tufts*, *Hedge-rows* and *Mounds*; and that *Shropſhire*, and ſeveral other Counties, and rarely any beyond *Stamford* to *Durham*, have any growing in many Miles together: Indeed *Camden* mentions a Place in *Yorkſhire*, called *Elmet*; and *V. Bede*, *Eccl. Hiſt. l.* xi. *c.* xiv. (ſpeaking of a Fire happening there, and deſcribing of the Harm it did thereabout, *Ulmarium* or *Ulmetum*) *Evaſit autem Ignem Altare, quia lapidium erat, & ſervatur adhuc in Monaſterio R. Abbatis & Presbyteri Thrythwuelf, quod in Sylva Elmete eſt*; but

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[a] Ut viror eſt ulmo lætus, ramique comantes,
Arduus, alta petens & levi cortice truncus.
Ulmum adhibe ordinibus, quoties fudenda per hortum,
Sunt ſerie ſpatia ingenti, texendaque totis
Æſtivos contra ſoles umbracula campis:
Una alias inter texendis aptior ulmus
Marginibus ſpatiorum, exornandoque vireto.
Seque adeo ſeries, plano ſuper æquore, tendat
Ulmorum tractu longo; quantum ipſa tuentum
Lumina, vel greſſus valeant luſtrare ſequentum. RAPINUS.

nei-

neither does this ſpeak it miraculous (for the *Altar* it ſeems was *Stone*) or that the *Elms* grew ſpontaneouſly. In the mean time, ſome affirm they were firſt brought out of *Lombardy*, where indeed I have obſerved very goodly Trees about the rich Grounds, with *Pines* among them, *vitelus almi*; for I hear of none either in *Saxony* or *Denmark*, nor in *France* (growing wild) who all came and preyed upon us after the *Romans*. But leaving this to the Learned. CHAP. IV.

9. The *Elm* is, by reaſon of its aſpiring and tapering Growth (unleſs it be *topp'd* to enlarge the *Branches*, and make them ſpread low) the leaſt offenſive to Corn and *Paſture-grounds*; to both which, and the *Cattle*, they afford a benign *Shade*, *Defence*, and agreeable *Ornament*: But then as to *Paſtures*, the wandering Roots (apt to infect the Fields and Graſs with innumerable *Suckers*) the leading *Mother-root* ought to be quite ſeparated on that Part, and the *Suckers* irradicated. The like ſhould be done where they are placed near Walks of *Turf* or *Gravel*.

10. It ſhould be planted as *ſhallow* as might be; for as we noted, deep *interring* of *Roots* is amongſt the *Catholick* Miſtakes; and of *this* the greateſt to which *Trees* are obnoxious. Let new-planted *Elms* be kept moiſt by frequent Refreſhings upon ſome half-rotten *Fern* or *Litter* laid about the Foot of the *Stem*; the Earth a little ſtirred and depreſſed for the better Reception and Retention of the *Water*.

11. *Laſtly*, Your Plantation muſt above all things be carefully preſerved from *Cattle* and the Concuſſions of impetuous *Winds*, till they are out of reach of the *one*, and ſturdy enough to encounter the *other*.

12. When you *lop* the Side-boughs of an *Elm* (which may be about *January* for the *Fire*, and more frequently, if you deſire to have them *tall*, or that you would form them into *Hedges*, for ſo they may be kept *plaſhed*, and thickned to the higheſt Twig, affording both a magnificent and auguſt Defence againſt the *Winds* and *Sun*) I ſay, when you trim them, be careful to endulge the *Tops*, for they protect the *Body* of your *Trees* from the *Wet*, which always invades thoſe Parts firſt, and will in Time *periſh* them to the very Heart; ſo as *Elms* beginning thus to decay, are not long proſperous. Sir *Hugh Plat* relates (as from an expert *Carpenter*) that the Boughs and Branches of an *Elm* ſhould be left a Foot long next the *Trunk* when they are *lopped*; but this is, to my certain Obſervation, a very great Miſtake either in the *Relator* or *Author*; for I have noted many *Elms* ſo disbranched, that the remaining *Stubs* grew immediately *hollow*, and were as ſo many *Conduits*, or *Pipes*, to hold, and convey the *Rain* to the very *Body* and *Heart* of the *Tree*.

13. There was a *Cloyſter* of the right *French Elm* in the little *Garden* near to Her *Majeſty*'s the Queen-*Mother*'s Chappel at *Somerſet-houſe*, which were (I ſuppoſe) planted *there* by the Induſtry of the *F. F. Capuchines*, that would have directed you to the incomparable Uſe of this noble *Tree* for *Shade* and *Delight*, into whatever *Figure* you will accuſtom them. I have my ſelf procured ſome of them from *Paris*, but they were ſo abuſed in the Tranſportation, that they all periſh'd ſave *one*, which now flouriſhes with me: I have alſo lately graffed *Elms* to a great Improvement of their Heads. *Virgil* tells us they will join in Marriage with the *Oak*, and they would both be tried; and that with the more probable Succeſs, for ſuch *lignous* Kinds, if you *graff* under the Earth, *upon* or *near* the very *Root* it ſelf, which is likely to enter-

BOOK I. tain the *Cyon* better than when more expoſed, till it be well fixt, and have made ſome conſiderable Progreſs.

14. When you would *fell*, let the *Sap* be perfectly in Repoſe, as it is commonly about *November* or *December*, even to *February*, after the *Froſt* hath well nipped them: I have already alledged my Reaſon for it; and I am told, that both *Oak* and *Elm* ſo cut, the very *Saplings* (whereof *Rafters*, *Spars*, &c. are made) will continue as long as the very *Heart* of the *Tree*, without Decay. In this Work, cut your *Kerfe* near to the Ground; but have a Care that it ſuffer not in the *Fall*, and be ruined with its own Weight: This depends upon your *Wood-man's* Judgment in *disbranching*, and is a neceſſary Caution to the *felling* of all other *Timber-trees*. If any begin to *doat*, pick out ſuch for the *Ax*, and rather truſt to its *Succeſſor:* And if cutting over-late, by floating them two or three Months in the *Water*, it prevents the *Worm*, and proves the beſt of *Seaſons*.

USES. 15. *Elm* is a *Timber* of moſt ſingular Uſe, eſpecially where it may lie continually *dry* or *wet*, in Extreams; therefore proper for *Water-works*, *Mills*, the *Ladles* and *Soles* of the *Wheel*, *Pipes*, *Pumps*, *Aquæ-ducts*, *Pales*, *Ship-planks* beneath the *Water-line*; and ſome that has been found buried in *Bogs* has turned like the moſt poliſhed and hardeſt *Ebony*, only diſcerned by the Grain: Alſo for *Wheel-wrights*, *Handles* for the *ſingle Hand-ſaw*, *Rails* and *Gates* made of *Elm* (thin ſawed) is not ſo apt to rive as *Oak:* The knotty for *Naves*, *Hubs*; the ſtraight and ſmooth for *Axle-trees*, and the very *Roots* for curiouſly dappled Works, ſcarce has any Superior for *Kerbs* of *Coppers*, *Feather-idge* and *Weather-boards* (but it does not without Difficulty admit the *Nail* without *boring*) *Chopping-blocks*, *Blocks* for the *Hat-maker*, *Trunks* and *Boxes* to be covered with *Leather*; *Coffins*, for *Dreſſers* and *Shovelboard-tables* of great Length, and a luſtrous *Colour*, if rightly ſeaſoned; alſo for the *Carver*, by reaſon of the Tenor of the *Grain*, and Toughneſs which fits it for all thoſe curious Works of *Frutages*, *Foliage*, *Shields*, *Statues*, and moſt of the Ornaments appertaining to the *Orders* of *Architecture*, and for not being much ſubject to warping; I find that of old, they uſed it even for *Hinges* and *Hooks* of *Doors*; but then, that Part of the *Plank* which grew towards the Top of the *Tree*, was in Work to be always reverſed; and for that it is not ſo ſubject to riſt; *Virtruvius* commends it both for *Tenons* and *Mortaiſes*; but beſides theſe, and ſundry other Employments, it makes alſo a ſecond Sort of *Charcoal*; and finally (which I muſt not omit) the Uſe of the very *Leaves* of this *Tree*, eſpecially of the *Female*, is not to be deſpiſed; for being ſuffered to dry in the *Sun* upon the Branches, and the *Spray* ſtripped off about the *Decreaſe* in *Auguſt* (as alſo where the Suckers and *Stolones* are ſupernumerary, and hinder the thriving of their *Nurſes*) they will prove a great Relief to *Cattle* in *Winter*, and Scorching *Summers*, when *Hay* and *Fodder* is dear, they will eat them before *Oats*, and thrive exceedingly well with them; remember only to lay your *Boughs* up in ſome dry and ſweet Corner of your *Barn:* It was for this the *Poet* praiſed them, and the *Epithet* was adviſed.

[a] —— *Fruitful in Leaves the Elm.*

In ſome Parts of *Herefordſhire* they gather them in Sacks for their *Swine*, and other *Cattle*, according to this *Husbandry*. But I hear an

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[a] —— fœcundæ frondibus Ulmi. *Georg.* ii.

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ill Report of them for *Bees*, that ſurfeiting of the blooming *Seeds*, they are obnoxious to the *Lask*, at their firſt going Abroad in *Spring*, which endangers whole *Stocks*, if *Remedies* be not timely adhibited; therefore 'tis ſaid in great *Elm* Countries they do not thrive; but the Truth of which I am yet to learn. The *green* Leaf of the *Elms* contuſed, heals a *green Wound* or *Cut*, and boiled with the *Bark*, conſolidates fractured *Bones*. All the Parts of this *Tree* are *abſterſive*, and therefore ſoveraign for the conſolidating *Wounds*; and aſſwage the Pains of the *Gout:* But the Bark decocted in common Water, to almoſt the Conſiſtence of a *Syrup*, adding a third Part of *Aqua Vitæ*, is a moſt admirable Remedy for the *Iſchiadicæ* or *Hippain*, the Place being well rubbed and chafed by the Fire. Other wonderful Cure s performed by the *Liquor*, &c. of this Tree, ſee Mr. *Ray*'s Hiſtory of *Plants*, Lib. xxv. Cap. i. Sect. 5. And for other *Species* of the *Elm*, his *Supplement*, Tom. iii. *ad Cap. de ulmo*. Tom. ii. p. 1428.

CHAP. V. CHAP. V.

Of the Beech.

1. THE *Beech* [*Fagus*] (of *two* or *three* Kinds) and numbred amongſt the glandiferous Trees, I rank here before the Martial *Aſh*, becauſe it commonly grows to a greater Stature. But here I may not omit a *Note* of the accurate *Critic Palmerius*, upon a Paſſage in *Theophraſtus*, where he *animadverts* upon his *Interpreter*, and ſhews that the antient Φηγὸς was by no means the *Beech*, but a Kind of *Oak*; for that the Figure of the *Fruit* is ſo widely unlike it, *that* being round, *this* triangular; and both *Theophraſtus* and *Pauſanias* make it indeed a Species of *Oak*, (as already we have noted in *Chap.* iii. wholly differing in *Trunk*, as well as *Fruit* and *Leaf*; to which he adds (what determines the Controverſy) ξύλον τῆς φηγὸς ἰσχυρότερον καὶ ἀσηπέστερον, *&c. That it is of a firmer Timber, not obnoxious to the Worm*; neither of which can ſo confidently be ſaid of the *Beech*. Yet *La Cerda* too ſeems guilty of the ſame Miſtake: But leaving this, there are of our *Fagi*, two or three Kinds with us, the *Mountain* (where it moſt affects to grow) which is the whiteſt, and moſt ſought after by the *Turner*; and the *Campeſtrial*, or wild, which is of a blacker Colour, and more durable. They are both to be raiſed from the *Maſt*, and govern'd like the *Oak* (of which amply) and that is abſolutely the beſt Way of furniſhing a *Wood*; unleſs you will make a *Nurſery*, and then you are to treat the *Maſt* as you are inſtructed in the *Chapter* of *Aſhes*, ſowing them in *Autumn*, or later, even after *January*, or rather nearer the *Spring*, to preſerve them from *Vermin*, which are very great Devourers of them. But they are likewiſe to be planted of young *Seedlings*, to be drawn out of the Places where the fruitful Trees abound. In *tranſplanting* them, cut off only the Boughs and bruiſed Parts two *Inches* from the *Stem*, to within a Yard of the *Top*, but be very ſparing of the *Root*; this for ſuch as are of pretty Stature. They make ſpreading *Trees*, and noble *Shades* with their well furniſh'd and gliſtering *Leaves*, being ſet at forty Foot Diſtance, but they grow taller, and more upright in the *Foreſts*, where I have beheld them at *eight* and *ten* Foot, ſhoot into very long *Poles*; but neither ſo apt for *Timber* nor *Fuel:* The *Shade* unpropi-

BEECH.

Exercit. in Theophraſt. l. iii. c. ix.

In Arcad.

BOOK I. tious to *Corn* and *Graſs*, but ſweet, and of all the reſt, moſt refreſhing to the weary *Shepherd*—— *Lentus in umbra*, *Echoing Amaryllis* with his *Oaten* Pipe. *Mabillon* tells us, in his *Itinerary*, of the old *Beech* at *Villambroſa*, to be ſtill flouriſhing (and greener than any of the reſt) under whoſe Umbrage the famous *Eremit Gualbertus* had his *Cell*.

This Tree planted in *Palliſade*, affords a uſeful and pleaſant Skreen to ſhelter *Orange* and other tender *Caſe-trees* from the parching Sun, *&c.* growing very tall, and little inferior to the *Horn-beam*, or *Dutch-Elm*. In the Valleys (where they ſtand warm, and in Conſort) they will grow to a ſtupendous *Procerity*, though the Soil be ſtony and very barren: Alſo upon the *Declivities*, Sides, and Tops of high *Hills*, and *Chalky Mountains* eſpecially; for though they thruſt not down ſuch deep and numerous Roots as the *Oak*, and grow to vaſt Trees, they will ſtrangely inſinuate their *Roots* into the Bowels of thoſe ſeemingly impenetrable Places, not much unlike the *Fir* it ſelf, which with *this* ſo common *Tree*, the Great *Cæſar* denies to be found in *Brittany*; *Materia cujuſque generis, ut in Gallia, præter Fagum & Abietem*; but certainly from a grand Miſtake, or rather, for that he had not travelled much up into the Country: Some will have it *Fagus* inſtead of *Ficus*, but that was never reckon'd among the *Timber-trees*: *Virgil* reports it will graff with the *Cheſnut*.

USES. 2. The *Beech* ſerves for various *Uſes* of the *Houſewife*;

[a] *Hence, in the World's beſt Years, the humble* Shed
Was happily and fully furniſhed:
Beech *made their* Cheſts, *their* Beds *and the* Joyn'd-Stools;
Beech *made the* Board, *the* Platters, *and the* Bowls.

With it the *Turner* makes *Diſhes*, *Trays*, *Rims* for *Buckets*, and other Utenſils, *Trenchers*, *Dreſſer-boards*, *&c.* likewiſe for the *Wheeler*, *Joyner*, for large *Screws*; and *Upholſter* for *Sellies*, *Chairs*, *Stools*, *Bedſteads*, *&c.* for the *Bellows-maker*, and *Husbandman* his *Shovel* and *Spade-graffs*; *Floats* for *Fiſhers Nets* inſtead of *Corks*, is made of its *Bark*; for *Fuel*, *Billet*, *Bavin* and *Coal*, though one of the leaſt laſting; not to omit even the very *Shavings* for the Fining of *Wines*. *Peter Creſcentius* writes, that the *Aſhes* of *Beech*, with proper Mixture, is excellent to make *Glaſs* with. If the *Timber* lie altogether under *Water*, 'tis little inferior to *Elm*, as I find it practiſed and aſſerted by *Shipwrights*: Of old they made their *Vaſa Vindemiatoria* and *Corbes Meſſoriæ* (as we our Pots for *Strawberries*) with the *Rind* of this *Beech*, nay, and Veſſels to preſerve *Wine* in, and that curiouſly wrought *Cup* which the Shepherd in the *Bucolicks* wagers withal, was engraven by *Alcimedon* upon the *Bark* of this *Tree*: And an happy Age it ſeems:

[b] ——————*no Wars did Men moleſt*,
When only Beechen-Bowls *were in Requeſt*.

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[a] Hinc olim juvenis Mundi melioribus annis,
Fortunatarum domuum non magna Supellex
Tota petebatur; Sellas Armaria, Lectos,
Et Menſas dabat, & Lances & Pocula Fagus, *&c.* COULEII *Pl.* l. ix.

[b] ——————nec Bella fuerunt,
Faginus eſtabat dum Scyphus ante dapes. TIBUL.

Of

Of the thin *Lamina*, or *Scale*, of this Wood (as our *Cutlers* call it) are made *Scabards* for Swords, and *Band-boxes*, ſuperinduc'd with thin *Leather* or *Paper*, *Boxes* for *Writings*, *Hat-caſes*, and formerly *Book-Covers*. I wonder we cannot *ſplit* it our ſelves, but ſend into other *Countries* for ſuch Trifles. In the Cavities of theſe *Trees*, *Bees* much delight to hive themſelves: Yet for all this, you would not wonder to hear me deplore the ſo frequent Uſe of this *Wood*, if you did conſider that the Induſtry of *France* furniſhes that Country for all Domeſtick *Utenſils* with excellent *Walnut*, a Material infinitely preferable to the beſt *Beech*, which is indeed good only for *Shade* and for the *Fire*, as being brittle, and exceedingly obnoxious to the *Worm*, where it lies either *dry*, or *wet* and *dry*, as has been noted; but being put ten Days in *Water*, it will exceedingly reſiſt the *Worm*: To which, as I ſaid, it is ſo obnoxious, that I wiſh the Uſe of it were, by a *Law*, prohibited all *Joyners*, *Cabinet-makers*, and ſuch as furniſh *Tables*, *Chairs*, *Bedſteads*, *Cofers*, *Screws*, &c. They have a Way to black and poliſh it, ſo as to render it like *Ebony*, and with a Mixture of *Soot* and *Urine*, imitate the *Walnut*; but as the Colour does not laſt, ſo neither does the Wood it ſelf (for I can hardly call it *Timber*) ſoon after the *Worm* has ſeized it, unleſs one *ſpunge* and imbibe it well with the *Oyl* of *Spike*, where they have made Holes. *Ricciolus* indeed much commends it for *Oars*; and ſome ſay, that the vaſt *Argo* was built of the *Fagus*, a good Part of it at leaſt, as we learn out of *Apollonius*; this will admit of Interpretation; the *Fagus* yet by *Claudian* is mentioned with the *Alder*,

[a] *So he that to export o'er Sea his Wares,*
A Veſſel builds, and to expoſe prepares
His Life to Storms, firſt Beech *and* Alder *cuts,*
And meaſuring them, to various Uſes puts.

But whilſt we thus condemn the *Timber*, we muſt not omit to praiſe the *Maſt*, which fats our *Swine* and *Deer*, and hath in ſome Families even ſupported Men with * Bread: *Chios* indured a memorable Siege by the Benefit of this *Maſt*; and in ſome Parts of *France* they now grind the *Buck* in *Mills*: It affords a ſweet *Oyl*, which the poor People eat moſt willingly: But there is yet another Benefit which this Tree preſents us; that its very *Leaves* (which make a natural and moſt agreeable *Canopy* all the Summer) being gathered about the Fall, and ſomewhat before they are much *Froſt-bitten*, afford the beſt and eaſieſt *Mattreſſes* in the World to lay under our *Quilts* inſtead of *Straw*; becauſe, beſides their Tenderneſs and looſe lying together, they continue ſweet for ſeven or eight Years long, before which Time Straw becomes muſty and hard; they are thus uſed by divers Perſons of Quality in *Dauphine*; and in *Switzerland* I have ſometimes lain on them to my great Refreſhment; ſo as of this Tree it may properly be ſaid,

[b] *The Wood's an Houſe; the Leaves a Bed.*

* Φαγὸς ἀ φάγειν.

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[a] Sic qui vecturus longinqua per æquora merces
Molitur tellure ratem, vitámque procellis
Objectare parat, Fagos metitur, & Alnos,
At varium rudibus ſilvis accommodat uſum, &c.

[b] ——— Silva domus, cubilia frondes, JUVENAL.

Being

Book I. Being pruned, it heals the *Scar* immediately, and is not apt to put forth ſo ſoon again as other Trees.

The ſtagnate *Water* in the hollow *Trees* cures the moſt obſtinate *Tetters*, *Scabs* and *Scurfs*, in *Man* or *Beaſt*, fomenting the Part with it; and the *Leaves* chewed, are wholſome for the *Gums* and *Teeth*, for which the very *Buds*, as they are in Winter hardned and dried upon the Twigs, make good *Tooth-pickers*. *Swine* may be driven to *Maſt* about the End of *Auguſt*: But it is obſerved, that where they feed on't before it be mature, it intoxicates them for a while; and that generally their Fat is not ſo good and ſolid, but drips away too ſoon. In the mean Time, the *Kernels* of the *Maſt* are greedily devoured by *Squirels*, *Mice*, and above all, the *Dormice*, who harbouring in the hollow Trees, grow ſo fat, that in ſome Countries Abroad, they take infinite Numbers of them (I ſuppoſe) to eat; and what Relief they give *Thruſhes*, *Black-birds*, *Feldefares* and other Birds, every Body knows. See *Mithiolus* in *Diſcord.* Lib. i. of what they ſuffer in *Carinthiæ*, *Carniola*, and *Itiria*. *Supplement* to this *Tranſact.* Vid. *Ray*'s Tom. iii. Lib. xxv. *Dendrologia Fugo.* Tom. ii. p. 1382.

CHAP. VI.

Of the Horn-beam.

Horn-Beam. 1. OStrys, the *Horn-beam*, (by ſome called the *Horſe-Beech*, from the Reſemblance of the Leaf) in *Latin* (ignorantly) the *Carpinus* is planted of *Sets*; though it may likewiſe be raiſed from the *Jülas* and *Seeds*, which being mature in *Auguſt*, ſhould be ſown in *October*, and will lie a Year in the *Bed*, which muſt be well and carefully ſhaded ſo ſoon as they peep: But the more expeditious Way is by *Layers* or *Sets*, of about an Inch *Diameter*, and cut within half a Foot of the Earth: Thus it will advance to a conſiderable Tree. The Places it chiefly deſires to grow in are in cold *Hills*, ſtiff Ground, and in the barren and moſt expoſed Parts of *Woods*. We have it no where more abounding in the *South*, than in the Woods of *Hertfordſhire*; very few *Weſtward*.

Uses. 2. Amongſt other Uſes which it ſerves for, as *Mill-Cogs*, *&c.* (for which it excels either *Yew* or *Crab*) *Yoak-timber* (whence of old, and for that it was as well *flexible* as *tough*, 'twas called ζυγία) Heads of *Beetles*, Stocks and Handles of *Tools:* It is likewiſe for the *Turner*'s Uſe excellent; good *Fire-wood*, where it burns like a *Candle*, and was of old ſo employed;

Carpinus tædas fiſſa facéſque dabit.

(For all which Purpoſes its extream Toughneſs and Whiteneſs commends it to the *Husbandman*). Being planted in ſmall *Foſſes* or *Trenches*, at half a Foot Interval, and in the ſingle Row, it makes the nobleſt and the ſtatelieſt *Hedges* for long Walks in *Gardens*, or *Parks*, of any Tree whatſoever whoſe Leaves are *deciduous*, and forſake their Branches in Winter; becauſe it grows tall, and ſo ſturdy, as not to be wronged by the Winds: Beſides, it will furniſh to the very Foot of the *Stem*, and flouriſhes with a gloſſie and poliſhed *Verdure*, which is exceeding delightful, of long Continuance, and of all other the harder Woods, the ſpeedieſt

ſpeedieſt Grower ; maintaining a ſlender upright *Stem*, which does not come to be bare and ſticky in many Years ; it has yet this (ſhall I call it) *Infirmity*, that keeping on its *Leaf* till new ones thruſt them off, 'tis clad in *Ruſſet* all the Winter long. That admirable *Eſpalier-hedge* in the long middle Walk of *Luxemburgh* Garden at *Paris* (than which there is nothing more graceful) is planted of this Tree ; and ſo was that *Cradle*, or *Cloſe-Walk*, with that perplext *Canopy* which lately covered the Seat in his *Majeſty's* Garden at *Hampton-Court*, and as now I hear, they are planted in Perfection at *New-Park*, the delicious *Villa* of the noble Earl of *Rocheſter*, belonging once to a near Kinſman of mine, who parted with it to King *Charles* the *Firſt* of Bleſſed Memory. Theſe *Hedges* are *Tonſile*; but where they are maintained to fifteen or twenty Foot Height (which is very frequent in the Places before mentioned) they are to be cut, and kept in Order with a *Sithe* of four Foot long, and very little *falcated*; this is fixed on a long *Sneed*, or ſtraight Handle, and does wonderfully expedite the trimming of theſe and the like *Hedges:* An oblong Square, *paliſado'd* with this *Plant*, or the *Flemiſh Ormus*, as is that I am going to deſcribe, and may be ſeen in that inexhauſtible *Magazine* at *Brompton-Park* (cultivated by thoſe two induſtrious *fellow Gardiners*, Mr. *London*, and Mr. *Wiſe*) affords ſuch an *Urabraculum frondium*, the moſt natural, proper Station and Convenience for the Protection of our *Orange-trees*, *Myrtles* (and other rare *Perennials* and *Exoticks*) from the ſcorching Darts of the *Sun*, and Heat of Summer; placing the *Caſes*, *Pots*, *&c.* under this Shelter, when either at the firſt Peeping out of the *Winter Concleave*, or during the increaſing Heat of *Summer*, they ſo are ranged and diſpoſed, as to adorn a noble *Area* of a moſt magnificent *Paradiſian Dining-Room* to the Top of *Hortulan* Pomp and Bliſs, ſuperior to all the *artificial* Furniture of the greateſt Prince's Court. Here the *Indian Narciſſus*, *Tuberoſes*, *Japan-Lillies*, *Jaſmines*, *Jonquills*, *Lalaes*, *Periclymena*, *Roſes*, *Carnations* (with all the Pride of the *Parter*) intermixt between the *Tree-Caſes*, *flowry Vaſas*, *Buſts* and *Statues*, entertain the *Eye*, and breath their *Redolent Odours* and *Perfumes* to the Smell: The *golden Fruit* and *Apples* of *Heſperides*, gratifie the *Taſte*, with the delicious *Annanas*, affecting all the *Senſories* ; whilſt the chearful Ditties of *Canorus Birds*, recording their innocent *Amours* to the Murmurs of the bubling *Fountain*, delight the *Ear*, and with the charming *Accents* of the fair and vertuous *Sex* (preferable to all the admired Compoſure of the moſt skilful *Muſicians*) join Conſort in *Hymns* and *Hallelujahs* to the bountiful and glorious *Creator*, who has left none of the *Senſes* which he has not *gratify'd* at *once*, with their moſt agreeable and proper Objects.

But to return to *Brompton:* 'Tis not to be imagined what a ſurpriſing *Scene* ſuch a ſpacious *Salone*, tapiſtried with the natural *Verdure* of the glittering *Foilage*, preſents the Spectator, and recompenſes the Toil of the ingenious *Planter*; when, after a little Patience, he finds the ſlender *Plants*, ſet but at five or ſix Foot Diſtance (nor much more in Height, well prun'd and dreſs'd) aſcend to an Altitude ſufficient to ſhade and defend his *Paradiſian* Treaſure, without excluding the milder *Gleams* of the glorious and radiant *Planet*, with his cheriſhing Influence and kindly Warmth, to all within the Incloſure, refreſhed with the cooling and early *Dew*, pregnant with the ſweet *Exhalations* which the Indulgent *Mother* and Teeming *Earth* ſends up, to nouriſh and maintain her numerous and tender Off-ſpring.

Book I. But after all, let us not dwell *here* too long, whilſt the *Inferences* to be derived from thoſe tempting and temporary Objects, prompt us to raiſe our *Contemplations* a little on Objects yet more worthy our *nobleſt* Speculations, and all our Pains and Curioſity, repreſenting that happy State above, namely, the *Cœleſtial Paradiſe:* Let us, I ſay, ſuſpend our Admiration a while, of theſe *Terreſtrial Gayeties*, which are of ſo ſhort Continuance, and raiſe our Thoughts from being too deeply immerſed and rooted in them, aſpiring after thoſe *ſupernal*, more laſting and glorious Abodes, namely, a *Paradiſe*; not like this of ours (with ſo much Pains and Curioſity) *made with Hands*, *but eternal in the Heavens*, where all the *Trees* are *Trees* of *Life*; the *Flowers* all *Amaranths*; all the *Plants Perennial*, ever *verdant*, ever *pregnant*; and where thoſe who deſire *Knowledge*, may fully *ſatiate* themſelves; *taſte* freely of the *Fruit* of that *Tree* which coſt the firſt *Gardiner* and Poſterity ſo dear; and where the moſt voluptuous Inclinations to the Allurements of the *Senſes*, may *take* and *eat*, and ſtill be innocent; no *forbidden Fruit*; no *Serpent* to *deceive*, none to be deceived.

Hail! O *hail* then, and welcome, you bleſſed *Elyziums*, where a *new State* of Things expects us; where all the pompous and charming Delights that detain us here a while, ſhall be changed into *real* and *ſubſtantial Fruitions*, *eternal Springs*, and *Pleaſure intellectual*, becoming the *Dignity* of our *Nature!*

I beg no Pardon for the *Application*, but deplore my no better *Uſe* of it; and that whilſt I am thus upon the *Wing*, I muſt now *deſcend* ſo ſoon again.

Of all the *Foreſters*, this preſerves it ſelf beſt from the Bruttings of *Deer*, and therefore to be kindly entertain'd in *Parks:* But the Reaſon why, with us, we rarely find them ample and ſpreading, is, that our *Husbandman* ſuffers too large and grown a *Lop*, before he cuts them off, which leaves ſuch ghaſtly Wounds, as often proves exitial to the Tree, or cauſes it to grow deform'd and hollow, and of little worth but for the Fire; whereas, were they oftner taken off, when the *Lops* were younger, though they did not furniſh ſo great Wood, yet the Continuance and Flouriſhing of the Tree, would more than recompence it. For this Cauſe,

3. They very frequently plant a *Clump* of theſe *Trees* before the Entries of moſt of the great *Towns* in *Germany*, to which they apply *Timber-frames* for Convenience, and the People to ſit and ſolace in. *Scamozzi*, the *Architect*, ſays, That in his Time he found *one* whoſe Branches extended *ſeventy Foot* in Breadth; this was at *Vuimfen* near the *Necker*, belonging to the *Duke* of *Wirtemberg:* But that which I find planted before the Gates of *Strasburgh*, is a *Platanus*, and a *Lime-tree* growing hard by one another, in which is erected a *Pergolo* eight Foot from the Ground, of *fifty* Foot wide, having ten *Arches* of twelve Foot Height, all ſhaded with their Foilage; and there is beſides this, an over-grown *Oak*, which has an *Arbour* in it of ſixty Foot Diameter: Hear we *Rapinus* deſcribe the Uſe of the *Horn-beam* for theſe and other Elegancies.

[a] *In Walks the* Horn-beam *ſtands, or in a Maze,*
Through thouſand ſelf-entangling Labyrinths ſtrays:
So claſp the Branches lopp'd on either Side,
As though an Alley *did two* Walls *divide:*
This Beauty found, Order did next adorn
The Boughs into a thouſand Figures ſhorn,
Which pleaſing Objects Wearineſs betray'd,
Your Feet into a Wilderneſs *convey'd:*
Nor better Leaf on twining Arbor ſpread,
Againſt the ſcorching Sun *to ſhield your Head.*

EVELYN RAPINUS.

CHAP. VII.

Of the Aſh.

1. FRaxinus the *Aſh*, is with us reputed *Male* and *Female*, the one affecting the higher Grounds; the other the Plains, of a whiter Wood, and riſing many Times to a prodigious Stature; ſo as in forty Years from the *Key*, an *Aſh* hath been ſold for *thirty* Pounds *Sterling*: And I have been credibly informed, that one Perſon hath planted ſo much of this one Sort of *Timber* in his Life-time, as hath been valued worth *fifty thouſand Pounds* to be bought. Theſe are pretty Encouragements for a ſmall and pleaſant Induſtry. That there is a *lower*, and more *knotty* Sort, every *Husbandman* can diſtinguiſh. ASH.

2. The *Keys*, or *Toungs*, being gathered from a young thriving Tree when they begin to fall (which is about the End of *October*, and the enſuing Month) are to be laid to dry, and then ſowed any Time betwixt that and *Chriſtmas*; but not altogether ſo deep as your former *Maſts*. Thus they do in *Spain*, from whence it were good to procure ſome of the *Keys* from their beſt Trees: A very narrow *Seminary* will be ſufficient to ſtore a whole *Country*: They will lie a full Year in the Ground before they appear; therefore you muſt carefully *fence* them all that Time, and have Patience: But if you would make a conſiderable Wood of them at once, *Dig* or *Plow* a Parcel of Ground, as you would prepare it for *Corn*, and with the *Corn*, eſpecially *Oats* (or what other *Grain* you think fittteſt) ſow alſo good Store of *Keys*, ſome *Crab-Kernels*, *&c.* amongſt them: Take off your Crop of *Corn* or *Seed* in its Seaſon, and the next Year following, it will be covered with young *Aſhes*, which will be fit either to *ſtand* (which I prefer) or be *tranſplanted* for divers Years after; and theſe you will find to be far better than any you can gather out of the *Woods* (eſpecially *Suckers*, which are worth nothing) being removed at one Foot Stature (the ſooner the better) for an *Aſh* of *two* Years thus taken out of the *Nurſery*, ſhall

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[a] In tractus longos facilis tibi Carpinus ibit,
Mille per errores, indeprehenſoſque receſſus,
Et molles tendens ſecto ſeu pariete ramos,
Præbebit viridem diverſo è margine ſcenam.
Primus bonos illi quondam, poſt additus ordo eſt,
Attonſæque comæ, & formis quæſita voluptas
Innumeris, furtoque viæ, obliquoque receſſu:
In tractus acta eſt longos & opaca vireta.
Quinetiam ægregiæ tendens umbracula frondis
Temperat ardentes ramis ingentibus æſtus.

outſtrip

Book I. outſtrip one of *Ten*, taken out of the *Hedge*; provided you defend them well from *Cattle*, which are exceedingly liquoriſh after their Tops: The Reaſon of this haſty *tranſplanting*, is to prevent their obſtinate and deep rooting; *tantus amor terræ*——which makes them hard to be taken up when they grow older, and that being removed, they take no great Hold till the ſecond Year, after which, they come away amain; yet I have planted them of five and ſix Inches *Diameter*, which have thriven as well as the ſmaller *Wands*. You may *accelerate* their ſpringing by laying the *Keys* in Sand, and ſome moiſt fine Earth. S. S. S. but lay them not too thick, or double, and in a *cover'd*, though *airy* Place for a *Winter*, before you ſow them; and the ſecond Year they will come away mainly; ſo you weed, trim and cleanſe them. Cut not his *Head* at all (which being young, is pithy) nor by any Means the *fibrous* Part of the *Roots*; only that down-right, or *Tap-root* (which gives our *Husbandmen* ſo much Trouble in drawing) is to be totally abated: But this Work ought to be in the Increaſe of *October* or *November*, and not in the *Spring*. We are (as I told you) willing to ſpare his Head rather than the Side Branches (which whilſt young, may be cut cloſe) becauſe being yet young, it is but of a ſpungy Subſtance; but being once well fixed, you may cut him as cloſe to the Earth as you pleaſe; it will cauſe him to ſhoot prodigiouſly, ſo as in a few Years to be fit for *Pike-ſtaves*; whereas if you take him wild out of the *Foreſt*, you muſt of Neceſſity ſtrike off the Head, which much impairs it. Hedge-row *Aſhes* may the oftner be *decapitated*, and ſhew their *Heads* again ſooner than other *Trees* ſo uſed. Young *Aſhes* are ſometimes in Winter *Froſt-burnt*, black as *Coals*, and then to uſe the *Knife* is ſeaſonable, though they do commonly recover of themſelves ſlowly. In *South-Spain* (where, as we ſaid, are the beſt) after the firſt Dreſſing, they let them grow till they are ſo big, as being cleft into four Parts, each Part is ſufficient to make a *Pike-ſtaff*: I am told there is a *Flemiſh Aſh* planted by the *Dutchmen* in *Lincolnſhire*, which in ſix Years grows to be worth *twenty Shillings* the Tree; but I am not aſſured whether it be the *Aſh* or *Abeele*; either of them were, upon this Account, a worthy Encouragement, if at leaſt the *latter* can be thought to bear that Price, which I much queſtion: From theſe low Cuttings come our *Ground-Aſhes*, ſo much ſought after for *Arbours*, *Eſpaliers*, and other *Pole-Works*: They will ſpring in abundance, and may be reduced to *one* for a *Standard-tree*, or for *Timber*, if you deſign it; for thus, *Hydra* like, a *Ground-cut-Aſh*

[a] *By Havock, Wounds and Blows,*
More lively and luxuriant grows.

will be propagated from a *Bough* ſlipt off with ſome of the *old Wood*, a little before the *Bud* ſwells, but with Difficulty by *Layers*. Such as they reſerve for *Spears* in *Spain*, they keep ſhrip'd up cloſe to the *Stem*, and plant them in cloſe Order, and moiſter Places. Theſe they cut above the *Knot* (for the leaſt *Nodoſity* ſpoils all) in the Decreaſe of *January*, which were of the lateſt for us: It is reported that the *Aſh* will not only receive its own Kind, but *graff*, or be *inoculated* with the *Pear* and *Apple*, but to what Improvement I know not.

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[a] Per damna, per cædes, ab ipſo
Ducit opes animúmque ferro. Hor.

3. It is by no means convenient to plant *Aſh* in *Plow-lands*; for the *Roots* will be obnoxious to the *Coulter*; and the *Shade* of the Tree is malignant both to *Corn* and *Graſs*, when the Head and Branches overdrip and *emaciate* them; but in *Hedge-rows* and *Plumps*, they will thrive exceedingly, where they may be diſpoſed at nine or ten Foot Diſtance, and ſometimes nearer: But in planting of a whole *Wood* of ſeveral Kinds of Trees for *Timber*, every *third* Set at leaſt, would be an *Aſh*. The beſt *Aſh* delights in the beſt Land (which it will ſoon impoveriſh) yet grows in any, ſo it be not over-ſtiff, wet, and approaching to the *marſhy*, unleſs it be firſt well drained: By the Banks of ſweet and cryſtal *Rivers* and Streams, I have obſerved them to thrive infinitely. One may obſerve as manifeſt a Difference in the *Timber* of *Aſhes*, as of the *Oak*; much more than is found in any one Kind of *Elm*, *cæteris paribus*: For ſo the *Ground-Aſh* (like the *Oak*) much excels a Bough or Branch of the ſame Bulk, for Strength and Toughneſs; and in yet farther Emulation of the *Oak*, it has been known to prove as good and laſting *Timber* for *Building*, nay, preferred before it, where there has been Plenty of *Oak*; vaſt Difference there is alſo in the Strength of *Ground* and *Quartered Aſh*: It is likewiſe remarkable that the *Aſh*, like the *Cork-tree*, grows when the *Bark* is as it were quite peel'd off, as has been obſerved in ſeveral *Foreſts*, where the *Deer* have bared them as far as they could climb: Some *Aſh* is curiouſly *camleted* and veined, I ſay, ſo differently from other *Timber*, that our skilful *Cabinet-makers* prize it equal with *Ebony*, and give it the Name of *Green Ebony*, which the *Cuſtomers* pay well for; and when our *Wood-men* light upon it, they may make what Money they will of it: But to bring it to that curious Luſtre, ſo as 'tis hardly to be diſtinguiſhed from the moſt curiouſly diaper'd *Olive*, they *varniſh* their *Work* with the *China Varniſh* (hereafter deſcribed) which infinitely excels *Linſeed-oyl*, that *Cardan* ſo commends, ſpeaking of this *Root*. The Truth is, the *Bruſcum* and *Molluſcum*, to be frequentlyfound in this *Wood*, is nothing inferior to that of *Maple* (of which hereafter) being altogether as exquiſitely diaper'd, and waved like the *Gamahes* of *Achates*; an eminent Example of divers ſtrange Figures of *Fiſh*, *Men* and *Beaſts*, Dr. *Plott* ſpeaks of to be found in a *Dining-table* made of an old *Aſh*, ſtanding in a *Gentleman*'s Houſe ſomewhere in *Oxfordſhire*: Upon which is mentioned that of *Jacobus Gafferellus*, in his Book of *Unheard-of Curioſities*; namely, of a *Tree* found in *Holland*, which being cleft, had in ſeveral Slivers, the Figures of a *Chalice*, a *Prieſt*'s *Albe*, his *Stole*, and ſeveral other *pontifical* Veſtments: Of this Sort was the *Elm* growing at *Middle-Aſton* in *Oxfordſhire*, a Block of which Wood being cleft, there came out a Piece ſo exactly reſembling a *Shoulder* of *Veal*, that it was worthy to be reckoned among the Curioſities of this Nature.

4. The Uſe of *Aſh* is (next to that of the *Oak* it ſelf) one of the moſt univerſal: It ſerves the Soldier —— *& Fraxinus utilis haſtis*, and heretofore the *Scholar*, who made uſe of the inner *Bark* to write on, before the Invention of *Paper*, *&c.* The *Carpenter*, *Wheel-wright*, *Cart-wright*, for *Ploughs*, *Axle-trees*, *Wheel-rings*, *Harrows*, *Bulls*, *Oars*, the beſt Blocks for *Pullies* and *Sheffs*, as *Seamen* name them; for drying *Herrings*, no Wood like it, and the *Bark* for the *tanning* of *Nets*; and like the *Elm*, for the ſame Property (of not being ſo apt to ſplit and ſcale) excellent for *Tenons* and *Mortaiſes*: Alſo for the *Cooper*, *Turner* and *Thatcher*: Nothing like it for our Garden USES.

BOOK I. *Paliſade-hedges*, *Hop-yards*, *Poles* and *Spars*, *Handles*, *Stocks* for *Tools*, *Spade-trees*, &c. In ſum, the *Husbandman* cannot be without the *Aſh* for his *Carts*, *Ladders* and other Tackling, from the *Pike* to the *Plow*, *Spear* and *Bow*; for of *Aſh* were they formerly made, and therefore reckon'd amongſt thoſe *Woods*, which, after long *Tenſion*, has a natural *Spring*, and recovers its Poſition; ſo as in *Peace* and *War* it is a *Wood* in higheſt Requeſt: In ſhort, ſo uſeful and profitable is this *Tree* (next to the *Oak*) that every prudent *Lord* of a *Mannor*, ſhould employ one Acre of Ground with *Aſh* or *Acorns* to every twenty *Acres* of other Land; ſince in as many Years, it would be more worth than the Land it ſelf. There is extracted an *Oyl* from the *Aſh*, by the *Proceſs* on other *Woods*, which is excellent to recover the *Hearing*, ſome Drops of it being diſtilled warm into the *Ears*; and for the *Caries* or *Rot* of the *Bones*, *Tooth-ach*, Pains in the *Kidneys*, and *Spleen*, the Anointing therewith is moſt ſoveraign. Some have uſed the *Saw-duſt* of this Wood inſtead of *Guiacum* with Succeſs. The *Chymiſts* exceedingly commend the *Seed* of *Aſh* to be an admirable Remedy for the *Stone*: But whether by the Power of *Magick* or *Nature*, I determine not. I have heard it affirmed with great Confidence, and upon Experience, that the *Rupture* to which many *Children* are obnoxious, is healed, by paſſing the *Infant* through a wide Cleft made in the *Bole* or Stem of a growing *Aſh-tree*, through which the Child is to be made *paſs*; and then carried a ſecond Time round the *Aſh*, cauſed to *repaſs* the ſame *Aperture* again, that the Cleft of the Tree ſuffered to *cloſe* and *coaleſce*, as it will, the *Rupture* of the Child, being carefully bound up, will not only abate, but be perfectly cured. The *Manna* of *Calabria* is found to *exſude* out of the Leaves and Boughs of this *Tree*, during the hot *Summer*-Months. *Laſtly*, the *white* and rotten *dotard* Part compoſes a *Ground* for our Gallants *Sweet-powder*, and the *Trunchions* make the *third* Sort of the moſt durable *Coal*, and is (of all other) the ſweeteſt of our *Foreſt Fuelling*, and the fitteſt for *Ladies* Chambers; it will burn even whilſt it is green, and may be reckoned amongſt the ἄκαπνα ξύλα. To conclude, The very *dead Leaves* afford (like thoſe of the *Elm*) relief to our *Cattle* in *Winter*; and there is a *Dwarf*-ſort in *France* (if in Truth it be not, as I ſuſpect, our *Witchen-tree*) whoſe *Berries* feed the poor People in *ſcarce* Years; but it bears no *Keys*, like to ours, which being *pickled* tender, afford a delicate *Salading*. But the *Shade* of the *Aſh* is not to be endured, becauſe the Leaves produce a noxious *Inſect*; and for diſplaying themſelves ſo very *late*, and falling very *early*, not to be planted for *Umbrage* or *Ornament*, eſpecially near the *Garden*, ſince (beſides their *predatious Roots*) the *Leaves* dropping with ſo long a *Stalk*, are drawn by Cluſters into the *Worm*-holes, which foul the *Alleys* with their *Keys*, and ſuddenly infect the Ground. *Note*, that the *Seaſon* for *Felling* of this *Tree*, muſt be when the *Sap* is fully at reſt; for if you cut it down too early, or over-late in the Year, it will be ſo obnoxious to the *Worm*, as greatly to prejudice the *Timber*; therefore to be ſure, *fell* not till the three *Mid-winter* Months, beginning about *November*: But in *lopping* of *Pollards* (as of *ſoft* Woods) Mr. *Cook* adviſes it ſhould be towards the *Spring*, and that you do not ſuffer the *Lops* to grow too great: Alſo, that ſo ſoon as a *Pollard* comes to be conſiderably *hollow* at the *Head*, you ſuddenly cut it down, the *Body* decaying more than the *Head* is worth: The ſame he pronounces of taller *Aſhes*, and where the *Wood-peckers* make Holes (who conſtantly *indicate* their being faulty)

ty) to *fell* it in the *Winter*. I am aſtoniſhed at the univerſal Confidence of ſome, that a *Serpent* will rather creep into the *Fire*, than over a Twig of *Aſh:* This is an old *Impoſture* of * *Pliny*'s, who either took it up upon Truſt, or we miſtake the *Tree*. Other *Species*, See *Raij Dendrolog. T.* iii. *Lib.* xxx. *p.* 95. *De Fraxino, T.* ii. *p.* 1704. CH. VIII.

* V. *Churaſium*, &c. *de riperis.*

CHAP. VIII.

Of the Cheſnut.

CHESNUT.

1. THE next is the *Cheſnut*, [*Caſtanea*] of which *Pliny* reckons many Kinds, eſpecially about *Tarentum* and *Naples*; *Janus Cornarius*, upon that of *Aetius* (*Verbo* Δρῦς) ſpeaks of the *Lopimi*, as a nobler Kind, ſuch as the *Euboicæ*, which the *Italians* call *Maroni*, *quaſi Caſtaneæ Maris*; but we commend thoſe of *Portugal* or *Bayonne*, chuſing the largeſt, brown and moſt *ponderous* for *Fruit*, ſuch as *Pliny* calls *Coctivæ*, but the leſſer ones to raiſe for *Timber*. They are produced beſt by *ſowing* and *ſetting*; previous to which, let the *Nuts* be firſt ſpread to *ſweat*, then cover them in *Sand*; a Month being paſt, plunge them in *Water*, reject the *Swimmers*; being dry'd for thirty Days more, *ſand* them again, and to the *Water-ordeal* as before. Being thus treated till the Beginning of *Spring*, or in *November*, ſet them as you would do *Beans*; and, as ſome practiſe it, drenched, for a *Night* or more, in new *Milk*; but without half this Preparation, they need only be put into the *Holes* with the Point upmoſt, as you plant *Tulips*: *Pliny* will tell you, they come not up, unleſs four or five be piled together in a Hole; but that is falſe, if they be good, as you may preſume all thoſe to be which paſs this *Examination*; nor will any of them fail: But being come up, they thrive beſt *unremoved*, making a great *ſtand* for at leaſt *two Years* upon every *tranſplanting*; yet if needs you muſt alter their *Station*, let it be done about *November*, and that into a light *friable* Ground, or moiſt *Gravel*, however they will grow even in *Clay*, *Sand*, and all mixed Soils, upon expoſed and bleak Places, and the pendent Declivities of *Hills* to the *North*, in dry airy Places, and ſometimes (though not ſo well) near *Marſhes* and *Waters*; but they affect no other *Compoſt*, ſave what their own *Leaves* afford them, and are more patient of *Cold* than *Heat:* As for their ſowing in the *Nurſery*, treat them as you are taught in the *Walnut*.

2. If you deſign to ſet them in *Winter* or *Autumn*, I counſel you to inter them within their *Husks*, which being every Way *armed*, are a good Protection againſt the *Mouſe*, and a providential *Integument*. *Pliny*, Lib. xv. Cap. xxiii. from this natural Guard, concludes them to be excellent *Food*; and doubtleſs *Cæſar* thought ſo, when he tranſported them from *Sardis* firſt into *Italy*, whence they were propagated into *France*, and thence among us; another Encouragement to make ſuch *Experiments* out of *foreign* Countries. Some ſow them confuſedly in the *Furrow* like the *Acorn*, and govern them as the *Oak*; but then would the Ground be broken up betwixt *November* and *February*; and when they ſpring, be cleanſed and thinned two Foot aſunder, after two Years Growth: Likewiſe may *Copſes* of *Cheſnuts* be wonderfully increaſed and thickened, by *laying* the tender and young Branches; but ſuch as ſpring from the *Nuts* and *Marrons*, are beſt of all, and will thrive

Book I. thrive exceedingly, if (being let ſtand without removing) the Ground be ſtirred, and looſened about their Roots, for two or three of the firſt Years, and the ſuperfluous Wood pruned away; and indeed for good Trees, they ſhould be ſhrip'd up after the firſt Year's Removal; they alſo ſhoot into gallant *Poles* from a felled *Stem*: Thus will you have a *Copſe* ready for a *Felling*, within eight Years, which (beſides many other Uſes) will yield you incomparable *Poles* for any Work of the *Garden*, *Vineyard* or *Hop-yard*, till the next *Cutting*: And if the Tree *like* the Ground, will in ten or twelve Years grow to a Kind of *Timber*, and bear plentiful Fruit.

3. I have ſeen many *Cheſnut-trees* tranſplanted as big as my Arm, their *Heads* cut off at five and ſix Foot Height; but they came on at Leiſure: In ſuch *Plantations*, and all others for *Avenues*, you may ſet them from *thirty* to *ten* Foot Diſtance, though they will grow much nearer, and ſhoot into *Poles*, if (being tender) you cultivate them like the *Aſh*, the Nature of whoſe *Shade* it reſembles, ſince nothing affects much to grow under it: Some *Husbands* tell me, that the young *Cheſnut-trees* ſhould not be pruned or touched with any *Knife* or *Edge-Tool* for the firſt three or four Years, but rather cropp'd or broken off, which I leave to farther Experience; however, many forbear to *Top* them when they tranſplant.

4. The *Cheſnut* being graffed in the *Walnut*, *Oak* or *Beech* (I have been told) will come exceeding fair, and produce incomparable Fruit; for the *Walnut* and *Cheſnut* in each other, it is probable; but I have not as yet made a full Attempt; they alſo ſpeak of inoculating *Cherries* in the *Cheſnut-ſtock* for a *later Fruit*. In the mean Time, I wiſh we did more univerſally propagate the *Horſe-cheſnut*, which being eaſily increaſed from *Layers*, grows into a goodly *Standard*, and bears a moſt glorious *Flower*, even in our cold Country: This Tree (ſo called, for the Cure of *Horſes Broken-winded*, and other *Cattle* of *Coughs*) is now all the *Mode* for the *Avenues* to their Country Palaces in *France*, as appears by the late *Superindent*'s Plantation at *Vaux*. It was firſt brought from *Conſtantinople* to *Vienna*, thence into *Italy*, and ſo *France*; but to *us* from the *Levant* more immediately, and flouriſhes ſo well, and grows ſo goodly a *Tree* in competent Time, that by *this* alone, we might have ample Encouragement to *Denizen* other *Strangers* amongſt us. One Inconvenience to which this beautiful Tree is obnoxious, is, that it does not well reſiſt impetuous and ſtormy Winds, without Damage.

Uses. 5. The *Cheſnut* is (next the *Oak*) one of the moſt ſought after by the *Carpenter* and *Joyner*: It hath formerly built a good Part of our ancient Houſes in the *City* of *London*, as does yet appear. I had once a very large *Barn* near the *City*, framed intirely of this *Timber*: And certainly they grew not far off, probably in ſome *Woods* near the *Town*: For in that Deſcription of *London*, written by *Fitz-Stephens*, in the Reign of *Hen.* II. he ſpeaks of a very noble and large *Foreſt* which grew on the *Boreal* Part of it; *Proxime* (ſays he) *patet foreſta ingens, ſaltus nemoroſi ferarum, latebræ cervorum, damarum, aprorum, & taurorum Silveſtrium*, &c. A very goodly Thing it ſeems, and as well ſtored with all Sorts of good *Timber*, as with *Veniſon* and all Kind of *Chaſe*; and yet ſome will not allow it a *Free-born* of this Iſland; but of that I make little Doubt. The *Cheſnut* affords the beſt *Stakes* and *Poles* for *Paliſades*, *Pedaments* for *Vine-*

props and *Hops*, as I ſaid before: Alſo for *Mill-Timber* and *Water-Works*, or when it may lie buried; but if *Water* touch the *Roots* of the growing Trees, it ſpoils both *Fruit* and *Timber*. 'Tis likewiſe obſerved, that this *Tree* is ſo prevalent againſt *Cold*, that where they ſtand, they defend other Plantations from the Injuries of the ſevereſt *Froſts*: I am ſure being planted in *Hedge-rows*, & *circa agrorum itinera*, or for *Avenues* to our *Country Houſes*, they are a Magnificent and Royal Ornament. This *Timber* alſo does well (if kept dry) for *Columns*, *Tables*, *Cheſts*, *Chairs*, *Stools*, *Bedſteads*; for *Tubs* and *Wine-Casks*, which it preſerves with the leaſt Tincture of the *Wood* of any whatſoever: If the *Timber* be dipped in *ſcalding Oyl*, and well *Pitched*, it becomes extreamly durable; but otherwiſe I cannot celebrate the *Tree* for its Sincerity, it being found that (contrary to the *Oak*) it will make a fair Shew outwardly, when 'tis all decayed and rotten within; but this is in ſome Sort recompenſed, if it be true, that the *Beams* made of *Cheſnut-tree* have this Property, that being ſomewhat brittle, they give Warning and premoniſh the Danger by a certain Crackling which it makes; ſo as 'tis ſaid to have frighted thoſe out of the *Baths* at *Antandro*, whoſe Roof was laid with this Material; but which *Pliny* ſays, was of *Hazle*, very unlike it. Formerly they made *Conſultatory Staves* of this Tree; and the *Variegated* Rods which *Jacob* peeled to lay in the *Troughs*, and impreſs a Fancy in his *Father-in-law*'s conceiving *Ewes*, were of this Material. The *Coals* are excellent for the Smith, being ſoon kindled, and as ſoon extinguiſhed; but the *Aſhes* of *Cheſnut-wood* are not convenient to make a *Lee* with, becauſe it is obſerved to ſtain the *Linnen*. As for the *Fruit*, 'tis better to beat it down from the Tree, ſome little Time before they fall off themſelves: Thus they will the better keep, or elſe you muſt Smoak-dry them. But we give that Fruit to our *Swine* in *England*, which is amongſt the Delicacies of *Princes* in other Countries; and being of the larger *Nut*, is a luſty and maſculine Food for *Ruſticks* at all Times; and of better Nouriſhment for *Husbandmen* than *Coal* and *Ruſty Bacon*; yea, or *Beans* to Boot, inſtead of which, they boil them in *Italy* with their *Bacon*; and in *Virgil*'s Time, they eat them with *Milk* and *Cheeſe*. The beſt Tables in *France* and *Italy* make them a *Service*, eating them with *Salt*, in *Wine*, or Juice of *Lemmon* and *Sugar*, being firſt roaſted in Embers on the *Chaplet*; and doubtleſs we might propagate their Uſe amongſt our *common People* (as of old the Βαλανοφάγοι) being a *Food* ſo cheap, and ſo laſting. In *Italy* they alſo boil them in *Wine*, and then ſmoak them a little: Theſe they call *Anſeri* or *Geeſe*, I know not why: Thoſe of *Piemont* and *Fennel*, *Cinnamon* and *Nutmeg* to their *Wine*; if in *Water*, mollify them with the Vapour only; but firſt they peel them. Others macerate them in *Roſe-water*. The *Bread* of the *Flour* is exceeding Nutritive; 'tis a robuſt Food, and makes Women well complexioned, as I have read in a good Author: They alſo make *Fritters* of *Cheſnut-flour*, which they wet with *Roſe-water* and ſprinkle with grated *Parmegiano*, and ſo fry them in freſh *Butter*, a Delicate: How we here uſe them in Stew'd-meats and *Beatille-Pies*, our *French-Cooks* teach us; and this is in Truth the very beſt *Uſe* of their Fruit, and very commendable; for it is found that the eating of them *raw*, or in Bread (as they do much about *Limoſin*) is apt to ſwell the Belly, though without any other Inconvenience that I can learn, and yet ſome condemn them as danger-

BOOK I. ous for ſuch as are ſubject to the *Gravel* in the *Kidneys*, and however cooked and prepared, *flatulent*, offenſive to the Head and Stomach, and thoſe who are ſubject to the *Cholick*. The beſt Way to preſerve them, is to keep them in Earthen Veſſels in a *cold* Place; ſome lay them in a *Smoak-loft*, others in dry *Barley-ſtraw*, others in *Sand*, &c. The Leaves of the *Cheſnut-tree* make very wholſome *Mattreſſes* to lie on, and they are good Litter for *Cattle:* But thoſe *Leafy-beds*, for the crackling Noiſe they make when one turns upon them, the *French* call *Licts de Parliament:* Laſtly, the *Flour* of *Cheſnuts* made into an *Electuary*, and eaten with *Honey* faſting, is an approved *Remedy* againſt ſpitting *Blood*, and the *Cough*; and a Decoction of the *Rind* of the Tree, tinctures *Hair* of a *golden* Colour, eſteemed a Beauty in ſome Countries: Other *Species*, V. *Raij Dendrolog. T.* iii. *&c.*

CHAP. IX.

Of the Walnut.

WALNUT. * See *Servius* introduced diſcourſing of this and other Nuts, *Macrob. Saturn.* l. iii. c. 18.

1. JUglans, *quaſi Jovis glans*, the * *Wall* or *Welch-nut* (though no where growing of it ſelf, ſome ſay, in *Europe*) is of ſeveral Sorts; Monſieur *Rencaume* (of the *French* Academy) reckons *nine*; the *ſoft Shell* and the *hard*, the *whiter* and the *blacker Grain:* This *black* bears the worſt *Nut*, but the *Timber* much to be preferred, and we might propagate more of them if we were careful to procure them out of *Virginia*, where they abound and bear a ſquarer Nut, of all other the moſt beautiful and beſt worth *planting*: Indeed, had we Store of *theſe*, we ſhould ſoon deſpiſe the reſt; yet thoſe of *Grenoble* come in the next Place, and are much prized by our *Cabinet-makers:* In all Events, be ſure to plant from young and thriving Trees, bearing full and plump *Kernels*. It is ſaid that the *Walnut* Kernel wrapped in its own *Leaf*, being carefully taken out of its *Shell*, brings a *Nut* without *Shell*, but this is a Trifle; the beſt Way to elevate them, is to ſet them as you do the *Cheſnut*, being planted of the *Nut*, or ſet at the Diſtance you would have him ſtand; for which they may be prepared by beating them off the *Tree* (as was preſcribed of the *Cheſnut*) ſome Days before they quit the Branches of themſelves, and kept in their *Husks*, or without them, till Spring, or by bedding them (being dry) in Sand, or good Earth, till *March* or earlier, from the Time they fell, or were beaten off the Tree: Or if before, they be ſet with *Husk* and all upon them; for the extream *Bitterneſs* thereof is moſt exitial and deadly to *Worms*; or it were good to ſtrew ſome *Furzes* (broken or chopped ſmall) under the Ground amongſt them, to preſerve them from *Mice* and *Rats*, when their Shells begin to wax tender; eſpecially if, as ſome, you ſupple them a little in warm *Cow*'s *Milk*; but being treated as before, you will find them already ſprouted, and have need only to be planted where they are to abide; becauſe (as we ſaid long ſince) they are moſt impatient of *tranſplanting:* But if there be an abſolute Neceſſity of *removing*, let your *Tree* never be above *four* Years old, and then by no Means touch the *Head* with your *Knife*, nor cut away ſo much as the very *Top-root*, being ſo old, if you can well diſpoſe of it, ſince being of a pithy and hollow Subſtance, the leaſt Diminution, or Bruiſe, will greatly endanger the killing: But ſee here what

we have ſaid of the *Cheſnut*. I have been told, that the very *Tops*, and paliſh *Buds* of this Tree, when it firſt ſprouts, though as late as *April*, will take hold of the Ground, and grow to an incredible Improvement; but firſt they ſteep them in *Milk* and *Saffron*; but this Attempt did not ſucceed with us, yet it will be propagated by a Branch ſlipp'd off with ſome of the *old Wood*, and ſet in *February*: An induſtrious and very experienced *Husbandman* told me, that if they be *tranſplanted* as big as ones Middle, it may be done ſafer than when younger; I do only report it: What they hint of putting a *Tile-ſhard* under the *Nuts* when firſt ſet, to divaricate and ſpread the *Roots* (which are otherwiſe apt to penetrate very deep) I like well enough; 'tis certain they will receive their own *Cyons* being *graffed*, and that it does improve their Fruit. The beſt *Compoſt* is the ſtrewing of *Aſhes* at the Foot of the Trees, the Salt whereof being waſhed into the Earth, is the beſt Dreſſing; whilſt the Juice of the fallen *Leaves*, though it kill the *Worm*, is noxious to the *Root*. This Tree does not refuſe to thrive even among others, and in great Woods, provided you ſhrip up the collateral Arms.

2. The *Walnut* delights in a dry, ſound and rich Land; eſpecially if it incline to a feeding *Chalk* or *Marle*; and where it may be protected from the Cold (though it affect *Cold* rather than extream *Heat*) as in great Pits, Valleys and Highway Sides; alſo in Stony-grounds, if *Loamy*, and on Hills, eſpecially *Chalky*; likewiſe in *Corn-fields*: Thus *Burgundy* abounds with them, where they ſtand in the midſt of goodly *Wheat-lands*, at ſixty and an hundred Foot Diſtance; and it is ſo far from hurting the *Crop*, that they look on them as a great Preſerver, by keeping the Grounds warm; nor do the Roots hinder the *Plow*. Whenever they fell a *Tree* (which is only the old and decayed) they always plant a young one near him; and in ſeveral Places betwixt *Hanaw* and *Franckfort* in *Germany*, no young *Farmer* whatſoever is permitted to *marry* a *Wife*, till he bring Proof that he hath planted, and is a Father of ſuch a ſtated Number of *Walnut-trees*, as the Law is inviolably obſerved to this Day, for the extraordinary Benefit which this *Tree* affords the *Inhabitants*: And in Truth, were this Timber in greater Plenty amongſt us, we ſhould have far better *Utenſils* of all Sorts for our Houſes, as *Chairs*, *Stools*, *Bedſteads*, *Tables*, *Wainſcot*, *Cabinets*, &c. inſtead of the more vulgar *Beech*, ſubject to the *Worm*, weak and unſightly; but which, to counterfeit and deceive the unwary, they waſh over with a *Decoction* made of the *green Husks* of *Walnuts*, *&c.* I ſay, had we Store of this *Material*, eſpecially of the *Virginian*, we ſhould find an incredible Improvement in the more ſtable *Furniture* of our Houſes, as in the firſt *frugal* and better Days of *Rome*: When,

> [a] *Tables made here at Home, thoſe Times beheld,*
> *Of our own* Wood, *for that ſame Purpoſe fell'd,*
> *Old* Walnut *blown down, when the* Wind *ſet* Eaſt.
>
> *Sir* R. STAPYLTON.

For if it had been cut in that Seaſon, it would not have proved ſo ſound, as we ſhew in our *Chapter of Felling*. It is certain, that the *Menſæ*

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[a] Illa domi natas, noſtraque ex arbore menſas
Tempora viderunt: hos lignum ſtabat in uſus,
Annoſam ſi fortè nucem dejecerat Eurus. JUVENAL. *l.* iv. *Sat.* xi.

nucinæ

nucinæ were once in Price even before the *Citrin*, as *Strabo* notes; and nothing can be more beautiful than ſome *Planks* and Works which I have beheld of it, eſpecially that which comes from *Grenoble*, of all other the moſt beautiful and eſteemed.

3. They render moſt graceful *Avenues* to our Country Dwellings, and do excellently near *Hedge-rows*; but had need be planted at forty or fifty Foot Interval, for they affect to ſpread both their Roots and Branches. The *Bergſtras* (which extends from *Heidelberg* to *Darmſtadt*) is all planted with *Walnuts*; for ſo, by another antient Law, the *Borderers* were obliged to nurſe up and take Care of them; and that chiefly for their Ornament and Shade; ſo as a Man may ride for many Miles about that Country under a continued *Arbour*, or *Cloſe-walk*; the *Traveller* both refreſhed with the *Fruit* and the *Shade*, which ſome have cauſeleſly defamed for its ill Effects on the *Head*, for which the *Fruit* is a *ſpecifique* and a notable *Signature*; although I deny not, but the Scent of the fallen Leaves, when they begin to be damped with lying, may emit ſomewhat a *heady Steam*, which to ſome has proved noxious; but not whilſt they were freſh and lively upon the Trees. How would ſuch publick *Plantations* improve the Glory and Wealth of a Nation! But where ſhall we find the Spirits among our Countrymen? Yes, I will adventure to inſtance in thoſe *Plantations* of Sir *Richard Stidolph*, upon the *Downs* near *Leather-head* in *Surry*; Sir *Robert Clayton* at *Morden* near *Godſtone* (once belonging to Sir *John Evelyn*) and ſo about *Caſſaulton*, where many Thouſands of theſe *Trees* do celebrate the *Induſtry* of the *Owners*, and will certainly reward it with infinite *Improvement*, as I am aſſured they do in part already, and that very conſiderably; beſides the *Ornament* which they afford to thoſe pleaſant *Tracts*, for ſome Miles in Circumference. There was lately (and for ought I know as yet) an *Avenue* of four Leagues in Length, and fifty Paces Breadth, planted with young *Oaklings*, as ſtraight as a Line, from the City of *Utrecht* to *Amersfort*, affording a moſt goodly Proſpect; which minds me of what *Sorbiere* tells in a *ſceptical* Diſcourſe to *Monſieur de Martel*, ſpeaking of the Readineſs of the People in *Holland* to furniſh and maintain whatſoever may conduce to the *Publick Ornament*, as well as Convenience; that their *Plantations* of theſe and the like *Trees*, even in their very *Roads* and common *Highways*, are better preſerved and entertained (as I my ſelf have likewiſe been often an Eye-witneſs) than thoſe about the *Houſes* and *Gardens of Pleaſure* belonging to the *Nobles* and *Gentry* of moſt other *Countries:* And in Effect it is a moſt raviſhing Object, to behold their Amenities in this Particular: With *us*, ſays he (ſpeaking of *France*) they make a Jeſt at ſuch Political *Ordinances*, by running theſe publick and uſeful Ornaments, if haply ſome more prudent *Magiſtrate* do at any Time introduce them. Thus in the Reign of *Henry* the *Fourth* (during the *Superintendency* of *Monſieur de Sulli*) there was a Reſolution of adorning all the *High-ways* of *France* with *Elms*, &c. but the rude and miſchievous *Peaſants* did ſo hack, ſteal and deſtroy what they had begun, that they were forced to deſiſt from the thorough Proſecution of the Deſign; ſo as there is nothing more expoſed, wild, and leſs pleaſant than the common *Roads* of *France* for Want of *Shade*, and the decent *Limits* which theſe ſweet and divertiſſant *Plantations* would have afforded. Not to omit that *political* Uſe, as my Lord *Bacon* hints it, where he ſpeaks of the *Statues* and *Monuments* of brave Men, and ſuch as had well deſerved of the *Publick*, e-

rected

erected by the *Romans* even in their *High-ways*; ſince, doubtleſs, ſuch noble and agreeable Objects would exceedingly divert, entertain, and take off the *Minds* and *Diſcourſes* of *melancholy* People, and penſive *Travellers*, who having nothing but the dull and encloſed Ways to caſt their Eyes on, are but ill *Converſation* to themſelves and others; and, inſtead of celebrating, cenſure their Superiors. It is by a curious *Perſon*, and induſtrious Friend of mine, obſerved, that the *Sap* of this Tree riſes and deſcends with the Sun's diurnal Courſe (which it viſibly ſlackens in the *Night*) and more plentifully at the *Root* on the *South* Side, though thoſe *Roots* cut on the *North* were larger, and leſs diſtant from the Body of the *Tree*; and not only diſtill'd from the Ends, which were next the Stem, but from thoſe that were cut off and ſeparated, which was never obſerved to happen in the *Birch*, or other *Sap-yielding Trees*.

CHAP. IX.

* Mr. *Oldenburg* ſpeaks of one of the preſent Kings in *Europe*, who drinks much of the *Juice* of this Tree, and finds great Benefit thereby.

* *Philoſoph. Tranſ.* Vol III Num. xl. p. 802.

4. What univerſal Uſe the *French* make of the *Timber* of this *ſole* Tree, for domeſtick Affairs, may be ſeen in every Room both of Poor and Rich: It is of ſingular Account with the *Joyner*, for the beſt grain'd, and colour'd *Wainſcot*; with the *Gun-ſmith* for *Stocks*; for *Coach-wheels* excellent, and the Bodies of *Coaches* (they make *Hoops* and *Bows* with it in *New-England*, for want of *Yew*:) The *Drum-maker* uſes it for *Rimbs*, the *Cabinet-maker* for *Inlayings*, eſpecially the firm and cloſe *Timber* about the *Roots*, which is admirable for *ſtecked* and *cambleted* Works, ſome Wood eſpecially, as that which we have from *Bologne*, *New-England* and *Virginia* (where they are of three or four Sorts, differing in their *Leaves*, *Fruit* and *Stature*) very black of Colour, and ſo admirably ſtreaked, as to repreſent natural Flowers, Land-skips and other Fancies. To render this the better coloured, *Joyners* put the Boards into an *Oven after the Batch is forth*, or lay them in a warm *Stable*, and when they work it, poliſh it over with its own *Oyl* very hot, which makes it look black and ſleek, and the older it is, the more eſteemable; but then it ſhould not be put in Work till thoroughly ſeaſoned, becauſe it will ſhrink beyond Expectation. It is only not good to confide in it much for Beams or Joyſts, becauſe of its Brittleneſs, of which yet, it has been obſerved to give timely Notice, as alſo the *Cheſnut*, by the Crackling before it breaks. Beſides the Uſes of the *Wood*, the *Fruit* with *Husk* and all, when tender and very young, is for *Preſerves* (condited in *ſeparate* Decoctions by our curious *Ladies*) alſo for *Food* and *Oyl*, of extraordinary Uſe with the *Painter*, in *Whites*, and other delicate *Colours*, alſo for *Gold-ſize* and *Varniſh*; and with this they poliſh *Walking-ſtaves*, and other Works which are wrought in with burning: For *Food* they fry with it in ſome Places, and eat it inſtead of *Butter* in *Berry*, where they have little or none good; and therefore they plant infinite Numbers of theſe Trees all over that Country: The Uſe of it to burn in *Lamps*, is common there. The younger *Timber* is held to make the better-colour'd Work (and ſo the *Oak*) but the older more firm and cloſe, is finer *chambleted* for Ornament; and the very *Husks* and *Leaves* being macerated in warm Water, and that *Liquor* poured on the *Carpet* of *Walks*, and *Bowling-greens*, does infallibly kill the *Worms*, without endangering the *Graſs*: Not to mention the *Dye* which is made of this *Lixive*, to colour *Wooll*, *Woods*, and *Hair*, as of Old they uſed it. The Water of the *Husks* is ſoveraign againſt all peſtilential Infections, and

USES.

BOOK I. that of the *Leaves* to mundifie and heal inveterate *Ulcers*. That which is produced of the *thick Shell*, becomes beſt *Timber*; that of the *thinner*, better *Fruit*. *Columella* has ſundry excellent Rules how to aſcertain and accelerate the *Growth* of this *Tree*, and to improve its *Qualities*; and I am aſſured, that having been graffed on the *Aſh* (though others ſay no *Inciſion* improves it) it thrives exceedingly, becomes a handſome *Tree*, and, what is moſt eſtimable, bears its *Fruit* within *four* Years; all which I recommend to the farther Induſtrious. The Green *Husk* dry'd, or the firſt peeping red *Buds* and *Leaves* reduced to *Powder*, ſerves inſtead of *Pepper*, to condite *Meats* and *Sauces*. 'Tis thought better to cudgel off the *Fruit*, when *dropping ripe*, than to gather it by hand; and that the *Husk* may open, lay them by in a dry *Room*, ſome times turning them with a *Broom*, but without waſhing, for fear of *Mouldineſs*. In *Italy* they arm the Tops of long *Poles* with *Nails* and *Iron* for the Purpoſe, and believe the *beating* improves the *Tree*; which I no more believe, than I do that *Diſcipline* would reform a perverſe *Shrew*. Thoſe *Nuts* which come not eaſily out of their *Husks*, ſhould be laid to mellow in Heaps, and the reſt expoſed in the *Sun*, till the *Shells* dry, elſe they will be apt to periſh the *Kernel:* Some again preſerve them in their own *Leaves*, or in a *Cheſt* made of *Walnut-tree Wood*; others in *Sand*, eſpecially if you will preſerve them for a *Seminary:* Do this in *October*, and keep them a little moiſt, that they may *ſpear*, to be ſet early in *February:* Thus after two Years they may be removed at a Yard aſunder, cutting the *top Root*, and *ſide Branches*, but ſparing the *Head*; and being two Yards high, *bud*, or remove them immediately. Old *Nuts* are not wholeſome till macerated in warm and almoſt boiling *Water*; but if you lay them in a *leaden* Pot, and bury them in the Earth, ſo as no *Vermin* can attack them, they will keep marvelouſly plump the whole Year about, and may eaſily be *blanched*. In *Spain* they uſe to ſtrew the Gratings of old and hard *Nuts* (firſt peeled) into their *Tarts* and other *Meats*. For the *Oyl*, one *Buſhel* of *Nuts* will yield *fifteen Pounds* of peeled and clear *Kernels*, and *that* half as much *Oyl*, which the ſooner it is drawn, is the more in Quantity, though the dryer the *Nut*, the better in Quality; the *Lees*, or *Marc* of the *Preſſing* is excellent to fatten *Hogs* with. After the *Nuts* are beaten down, the *Leaves* ſhould be ſweep'd into Heaps, and carried away, becauſe their extreme Bitterneſs impairs the Ground, and, as I am aſſured, prejudices the Trees: The green *Husks*, boiled, make a good Colour to dye a dark *Yellow*, without any Mixture; and the Diſtillation of its *Leaves* with *Honey* and *Urine*, makes *Hair* ſpring on *bald Heads:* Beſides its Uſe in the famous *Salernitan Antidote*; if the *Kernel*, a little maſticated, be applied to the Biting of a ſuſpected *mad Dog*, and when it has lain three Hours, be caſt to *Poultry*, they will die if they eat of it. In *Italy*, when a Countryman finds any Pain in his Side, he drinks a Pint of the freſh *Oyl* of this *Nut*, and finds immediate Eaſe. And more famous is the wonderful Cure which the *fungus* Subſtance, ſeparating the *Lobes* of the *Kernel*, pulverized and drank in Wine, in a moderate Quantity, did recover the *Engliſh* Army in *Ireland* of a *Dyſſentery*, when no other Remedy could prevail: The ſame alſo in *Pleuriſies*, &c. The *Juice* of the outward Rind of the *Nut* makes an excellent *Gargle* for a Sore-Throat: The *Kernel* being rubbed upon any Crack or *Chink* of a leaking or crazy *Veſſel*, ſtops it better than either *Clay*, *Pitch*, or *Wax*. In *France* they eat them *blanched* and freſh, with *Wine*

and *Salt*, having firſt cut them out of the Shells before they are harden'd, with a ſhort broad *Braſs Knife*, becauſe *Iron* ruſts; and theſe they call *Cernois*, from their Manner of ſcooping them out. *Laſtly*, of the *Fungus* emerging from the Trunk of an old Tree (and indeed ſome others) is made *Touch-wood*, artificially prepared in a *Lixivium*, or *Lye*, dried, and beaten flat, and then boiled with *Salt-petre*, to render it apter to kindle. The Tree wounded in the *Spring*, yields a Liquor, which makes an artificial *Wine*. See *Birch*, *Chap.* xvii. Of other *Species*, ſee Mr. *Ray*'s *Dendrolog. Tom.* iii. *p.* 5, 6. CHAP. X.

CHAP. X.

Of the Service, and Black Cherry-Tree.

1. *Sorbus*, the *Service-Tree* (of which there are *four* Sorts) is raiſed of the *Chequers*, or *Berries*, which being *ripe* (that is) *rotten*, about *September* (and the *Pulp* rubbed off clean from the *Stones* in dry *Sand*, and ſo kept till after *Chriſtmas*) may be ſown like *Beech-maſt*, educated in the *Nurſery* like the *Cheſnut*. It is reported that the *Sower* never ſees the *Fruit* of his Labour, either for that it bears only being very *old*, or that *Men* are commonly *ſo*, before they think of planting *Trees*: But this is an egregious Miſtake; for theſe come very ſoon to be *Trees*, and being planted young, thrive exceedingly; I have likewiſe planted them as big as my Arm ſucceſsfully. The beſt Way is therefore to propagate them of *Suckers*, of which they put forth enough, as alſo of *Sets*, and may be *budded* with great Improvement. They delight in reaſonable good ſtiff Ground, rather inclining to cold, than over hot; for in Places which are too dry, they never bear kindly. The *Torminalis* (ſo called for its Effects againſt Gripings in the Bowels) is the Kind moſt frequent with us; for thoſe of the narrower, and leſs indented *Leaf*, are not ſo common in *England* as in *France*, bearing a Sort of *Berry* of the *Pear*-ſhape, and is there called the *Cormier*. This *Tree* may be *graffed* either in it ſelf, or on the *White-thorn* and *Quince*. To this we might add, the *Meſpilus*, or *Medlar*, being an hard Wood, and of which I have ſeen very beautiful *Walking-ſtaves*. But there is yet a rare Kind of *Service-Tree*, frequent in *Germany*, which we find not in our Woods; and they ſpeak of another Sort, which bears *Poiſon-berries*. SERVICE.

2. The *Timber* of the *Sorb* is uſeful for the *Joyner*, and of which I have ſeen a Room curiouſly wainſcotted: Alſo for the *Engraver* of *Wood-cuts*, *Bows*, *Pulleys*, *Screws*, *Mill-ſpindles* and other; *Goads* to drive *Oxen* with, *&c.* *Piſtol* and *Gun-ſtocks*, and for moſt that the *Wild Pear-tree* ſerves; and being of a very delicate *Grain* for the *Turner*, and divers *Curioſities*, and looks beautifully, and is almoſt everlaſting; being rubbed over with *Oyl* of *Linſeed*, well boiled, it may be made to counterfeit *Ebony*, or almoſt any *Indian-wood*, coloured according to *Art*: Alſo it is taken to *build* with, yielding *Beams* of conſiderable Subſtance. The *Shade* is beautiful for *Walks*, and the *Fruit* not unpleaſant, eſpecially the *ſecond* Kind, of which, with new *Wine* and *Honey*, they make a *Conditum* of admirable Effect to corroborate the *Stomach*; and the *Fruit* alone is good in *Dyſſenteries* and *Lasks*. The *Water* diſtilled from the *Stalks* of the *Flowers* and *Leaves* in M. B. USES.

and

and twice *rectified* upon freſh Matter, is incomparable for *conſumptive* and *tabid* Bodies, taking an *Ounce* daily at ſeveral Times: Likewiſe it cures the *Green-ſickneſs* in *Virgins*, and is prevalent in all *Fluxes*; diſtilled warm into the *Ears*, it abates the Pain; the *Wood* or *Bark* contuſed, and applied to any green *Wound*, heals it; and the *Powder* thereof, drank in *Oil-Olive*, conſolidates inward *Ruptures:* Laſtly, the *Salt* of the *Wood*, taken in Decoction of *Althæa* to three *Grains*, is an incomparable Remedy to break and expel Gravel. The *Service* gives the *Husbandman* an early Preſage of the approaching *Spring*, by extending his adorned *Buds* for a peculiar Entertainment, and dares peep out in the ſevereſt *Winters*.

3. That I rank this amongſt the *Foreſt Berry-bearing Trees* (frequent in the *Hedges*, and growing wild in *Herefordſhire*, and many Places; for I ſpeak not here of our *Orchard-Cherries*, ſaid to have been brought into *Kent* out of *Flanders* by *Hen.* VIII.) is chiefly from the Suffrage of that induſtrious Planter Mr. *Cooke*, from whoſe Ingenuity and Experience (as well as out of Gratitude for his frequent mentioning of me in his elaborate and uſeful Work) I acknowledge to have benefited my ſelf, and this *Edition*; though I have alſo given no obſcure Taſte of this pretty Tree in *Chap.* xx.

It is raiſed of the *Stones* of *Black Cherries* very ripe (as they are in *July*) endeavouring to procure ſuch as are full and large; whereof ſome, he tells us, are a little inferior to the *Black Orleance*, without *graffing*, and from the very *Genius* of the Ground. Theſe gathered, the *fleſhy* Part is to be taken off, by rolling them under a *Plank* in dry *Sand*; and when the Humidity is off (as it will be in three or four Days) reſerve them in *Sand* again a little moiſt and houſed, till the Beginning of *February*, when you may ſow them in a *light gravelly Mould*, keeping them clean for two Years, and thence planting them into your *Nurſeries*, to raiſe other Kinds upon, or for *Woods*, *Copſes* and *Hedge-rows*, and for *Walks* and *Avenues*, which, if of a dryiſh *Soil*, mixt with *Loam*, though the Bottom be *Gravel*, will thrive into ſtately Trees, beautified with *Bloſſoms* of a ſurprizing Whiteneſs, greatly relieving the ſedulous *Bees*, and attracting *Birds*.

If you ſow them in *Beds* immediately after they are *excarnated*, they will appear the following *Spring*, and then at two Years Shoot, be fit to plant out where you pleaſe; otherwiſe, being kept too long e'er you *ſow* them, they will ſleep two *Winters:* And this is a *Rule*, which he preſcribes for all Sorts of *Stone-fruit*.

You may almoſt at any Time remove young *Cherry-trees*, abating the *Heads* to a ſingle Shoot.

He recommends it for the *Copſe*, as producing a ſtrong *Shoot*, and as apt to put forth from the Roots as the *Elm*, eſpecially if you fell luſty Trees: In light Ground it will increaſe to a goodly tall Tree, of which he mentions *one*, that held above eighty-five *Foot* in *Height*. I have my ſelf planted of them, and imparted to my Friends, which have thrived exceedingly; but till now did not inſert it among the *Foreſters:* The *Vertues* of the *Fruit* of this *Cherry-tree* againſt the *Epilepſy*, *Palſy* and *Convulſions*, *&c.* are in the *Spirits* and *diſtill'd Waters*. Concerning its other *Uſes*, ſee the *Chapter* and *Section* above-mentioned, to which add *Pomona*, Chap. viii. annexed with this Treatiſe. This Tree affords excellent *Stocks* for the *budding* and *graffing* of other *Cherries* on.

And

And here I might mention the *Bitter Cherry* of *Canada*, (though exceedingly unlike to ours) which would yet be propagated for the incomparable *Liquor* it is ſaid to yield, preferable to the beſt *Limonade*, by an *Inciſion* of two Inches deep in the *Stem*, and ſloping to the Length of a *Foot*, without Prejudice to the Tree. What is ſaid of it, and of the *Maple*, in the late Diſcovery of the *North-America*, may be ſeen in the late Deſcription of thoſe Countries. For other *Exotic Species*, V. *Raij Dendrolog. Tom.* iii. p. 45, 46. CHAP. XI.

CHAP. XI.

Of the Maple.

1. THE *Maple* [*Acer minus*] (of which *Authors*, ſee *Salmaſius* upon *Solinus*, Chap. xxxiii. reckon very many Kinds) was of Old held in equal Eſtimation almoſt with the *Citron*, eſpecially the *Bruſcum*, the *French Maple*, and the *Pavonaceus*, *Peacocks-tail Maple*, which is that Sort ſo elegantly *undulated*, and *criſped* into Variety of *Curls*, as emulates the famous *Citria*. It were a moſt laudable Attempt, if ſome would enquire out, and try the planting of ſuch Sorts as are *Indigenes* amongſt us; ſuch as is eſpecially the *German Aier*, and that of *Virginia*, not yet cultivated here, but an excellent *Tree*: And if this were extended to other *Timber*, and *Exotic* Trees likewiſe, it would prove of extraordinary Benefit and Ornament to the *Publick*, and were worthy even of the *Royal* Care. They are all produced of *Seeds* contained in the *Folliacles* and *Keys*, or *Birds-Tongues* (as they are called) like the *Aſh* (after a Year's Interment) and like to it, affect a ſound, and a dry Mould; growing both in *Woods* and *Hedge-rows*, eſpecially in the latter; which if rather hilly than low, affords the faireſt *Timber*. It is alſo propagated by *Layers* and *Suckers*. By ſhredding up the Boughs to a Head, I have cauſed it to ſhoot to a wonderful Height in a little Time; but if you will *lop* it for the *Fire*, let it be done in *January*; and indeed it is obſerved to be of noxious Influence to the ſubnaſcent Plants of other Kinds, by Reaſon of a *clammy Dew*, which it ſheds upon them, and therefore they would not be indulged in *Pollards*, or ſpreading Trees, but to thicken *Under-woods* and *Copſes*. The *Timber* is far ſuperior to *Beech* for all Uſes of the *Turner*, who ſeeks it for *Diſhes*, *Cups*, *Trays*, *Trenchers*, *&c.* as the *Joyner* for *Tables*, *In-layings*, and for the Delicateneſs of the *Grain*, when the *Knurs* and *Nodoſities* are rarely *diaper'd*, which does much advance its Price: Our *Turners* will work it ſo *thin*, that it is almoſt *tranſparent*; alſo for the Lightneſs (under the Name *Aier*) employed often by thoſe who make *muſical Inſtruments*; alſo that eſpecially, which grows in *Friuli*, *Carniola* and *Saltzburglandt*: There is a larger Sort, which we call the *Sycamore*. USES.

2. But the Deſcription of this leſſer *Maple*, and the antient Value of it, is worth the citing. *Acer operum elegantiâ, & ſubtilitate Cedro ſecundum; plura ejus genera: Album, quod precipui candoris vocatur Gallicum: In Tranſpadana Italia, tranſque Alpes naſcens. Alterum genus, criſpo macularum diſcurſu, qui cum excellentior fuit, à ſimilitudine caudæ pavonum nomen accepit.* 'The *Maple* (ſays *Pliny*) for the Elegancy and Fineneſs of the *Wood*, is next to the very *Cedar* it ſelf. There are ſeveral *Kinds* of it, eſpecially the

BOOK I. ‘ *White*, which is wonderfully beautiful; this is called the *French* ‘ *Maple*, and grows in that Part of *Italy* that is on the other Side of ‘ *Po* beyond the *Alps:* The other has a *curl'd Grain*, ſo curiouſly ‘ *maculated*, that from a near Reſemblance, it was uſually called the ‘ *Peacock*'s-*Tail*, &c.’ He goes on to commend that of *Iſtria*, and that growing on the Mountains for the beſt: But in the next Chapter; *Pulcherimum vero eſt Bruſcum, multoque excellentius etiamnum Molluſculum, tuber utrumque arboris ejus. Bruſcum intortiùs criſpum, Molluſcum ſimplicius ſparſum; & ſi magnitudinem menſarum caperet, haud dubiè præferretur Cedro, nunc intra pugillares, lectorumque ſilicios aut laminas, &c. è Bruſco fiunt menſæ nigreſcentes, &c.* Plin. Lib. xvi. Cap. xv, xvi. ‘ The *Bruſcum*, or *Knur*, is won- ‘ derfully fair, but the *Molluſcum* is counted moſt precious; both of ‘ them *Knobs* and Swellings out of the *Tree*. The *Bruſcum* is more ‘ intricately criſped; the *Molluſcum* not ſo much; and had we *Trees* ‘ large enough to ſaw into *Planks* for *Tables*, ’twould be preferred ‘ before *Cedar* (or *Citron*, for ſo ſome Copies read) it but now they ‘ uſe it only for ſmall *Table-books*, and with its thin *Boards* to Wain- ‘ ſcot *Bed-Teſters* with, *&c.* The *Bruſcum* is of a blackiſh Kind, ‘ with which they make *Tables.*’ Thus far *Pliny*. And ſuch ſpotted *Tables* were the famous *Tigrin* and *Pantherine* Curioſities of; not ſo called from being ſupported with Figures carved like thoſe Beaſts, as ſome conceive, and was in Uſe even in our *Grandfathers* Days, but from its natural Spots and Maculations, *hem, quantis facultatibus æſtimavere ligneas maculas!* as *Tertullian* cries out, *de Pallio*, Cap. v. Such a *Table* was that of *Cicero*'s, which coſt him ten thouſand *Seſterces*; ſuch another had *Aſinius Gallus.* That of King *Juba* was ſold for fifteen thouſand, and another, which I read of, valued at a hundred and forty thouſand, H. S. which at about *Three Pence Sterling*, arrives to a pretty Sum; and yet that of the *Mauritanian Ptoleme*, was far richer, containing four *Foot* and an half *Diameter*, three *Inches* thick, which is reported to have been ſold for its Weight in *Gold:* Of that Value they were, and ſo madly *luxurious* the Age, that when they at any Time reproached their *Wives* for their wanton Expenſiveneſs in *Pearl* and other rich Trifles, they were wont to retort, and turn the *Tables* upon their *Husbands.* The *Knot* of the *Timber* was the moſt eſteemed, and is ſaid to be much reſembled by the *Female Cypreſs:* We have now, I am almoſt perſuaded, as beautiful *Planks* of ſome *Walnut-trees*, near the *Root*; and *Yew*, *Ivy*, *Roſe-wood*, *Aſh*, *Thorn* and *Olive*, I have ſeen incomparable Pieces; but the great Art was in the *Seaſoning* and *Poliſure*; for which *laſt*, the rubbing with a Man's *Hand*, who came warm out of the *Bath*, was accounted better than any Cloth, as *Pliny* reports. Some there be who contend, this *Citern* was a Part near the *Root* of the *Cedar*, which, as they deſcribe it, is very *oriental* and *odoriferous*; but moſt of the Learned favour the *Citron*, and that it grew not far from our *Tangier*, about the Foot of *Mount Atlas*, whence haply ſome induſtrious Perſon might procure of it from the *Moors*; and I did not forget to put his then *Excellency*, my Lord *H. Howard* (ſince his Grace the Duke of *Norfolk*) in mind of it; who I hoped might have Opportunities of ſatisfying our *Curioſity*, that by comparing it with thoſe elegant *Woods*, which both our own *Countries*, and the *Indies* furniſh, we might pronounce ſomething in the *Controverſy:* But his not going ſo far into the *Country*, and the Diſorder which happened

at his being there, quite fruſtrated this Expectation: Here I think good to add, what honeſt *Paliſſy* philoſophiſes, after his plain Manner, about the Reaſon of thoſe pretty *Undulations* and *Chamfers*, which we ſo frequently find in divers *Woods*, which he takes to be the *Deſcent*, as well as *Aſcent* of *Moiſture*: For what elſe (ſays he) becomes of that *Water* which we often encounter in the *Cavities*, when many Branches *divaricate*, and ſpread themſelves at the Tops of great *Trees* (eſpecially *Pollards*) unleſs (according to its natural Appetite) it ſink into the very Body of the *Stem* through the *Pores*? For *Example*, in the *Walnut*, you ſhall find, when 'tis old, that the *Wood* is admirably *figured*, and, as it were, *marbled*, and therefore much more eſteemed by the *Joyners*, *Cabinet-makers*, and *Ouvrages de Marqueterie*, *Inlayers*, *&c.* than the *Young*, which is paler of *Colour*, and without any notable *Grain*, as they call it. For the *Rain* diſtilling along the *Branches*, when many of them break out into Cluſters from the *Stem*, ſinks *in*, and is the Cauſe of theſe *Marks*; ſince we find it exceedingly full of *Pores*: Do but plane off a thin Chip, or Sliver, from one of theſe *old Trees*, and interpoſing it betwixt your *Eye* and the *Light*, you ſhall obſerve it to be full of innumerable *Holes* (*much more perſpicuous and ample, by the Application of a good* * *Microſcope.*) But above all, notable for theſe extravagant *Damaskings* and *Characters*, is the *Maple*; and 'tis notorious, that this *Tree* is very full of *Branches* from the *Root* to its very *Summit*, by reaſon that it produces no conſiderable *Fruit*: Theſe *Arms* being frequently cut, the *Head* is more ſurcharged with them, which ſpreading like ſo many *Rays* from a *Centre*, form that *Hollowneſs* at the Top of the *Stem* whence they ſhoot, capable of containing a good Quantity of Water every Time it *rains*: This ſinking into the *Pores*, as was before hinted, is compelled to divert its Courſe as it paſſes through the Body of the *Tree*, where-ever it encounters the *Knot* of any of thoſe *Branches* which were cut off from the *Stem*; becauſe their *Roots* not only deeply penetrate towards the *Heart*, but are likewiſe of themſelves very *hard* and *impervious*; and the frequent *Obliquity* of this *Courſe* of the ſubſiding *Moiſture*, by reaſon of theſe Obſtructions, is, as may be conceived, the Cauſe of thoſe curious *Works* which we find remarkable in *this*, and other *Woods*, whoſe *Branches* grow thick from the *Stem*: But for theſe curious *Contextures*, conſult rather the Learned Dr. *Grew*. We have ſhewed how by *Culture*, and ſtripping up, it arrives to a goodly Tree; and ſurely there were ſome of them of large Bulk, and noble *Shades*, that *Virgil* ſhould chooſe it for the *Court* of his *Evander* (one of his worthieſt *Princes*, in his beſt of *Poems*) ſitting in his *Maple-Throne*; and when he brings *Æneas* into the *Royal Cottage*, he makes him this memorable *Complement*; *Greater*, ſays *great Cowley*, than ever was yet ſpoken at the *Eſcurial*, the *Louvre*, or *White-Hall*.

* Not invented in *Paliſſy*'s Days.

[a] *This humble* Roof, *this Ruſtick* Court, *ſaid he*,
Receiv'd Alcides *crown'd with Victory*:
Scorn not (*great* Gueſt) *the Steps where he has trod*,
But contemn Wealth, *and imitate a* God.

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[a] ——Hæc (inquit) limina Victor
Alcides——

The

Book I. The *Savages* in *Canada*, when the *Sap* riſes in the *Maple*, by an *Inciſion* in the Tree, *extract* the *Liquor*; and having *evaporated* a reaſonable Quantity thereof (as ſuppoſe ſeven or eight Pounds) there will remain one Pound, as ſweet and perfect *Sugar* as that which is gotten out of the *Cane*; Part of which *Sugar* has been for many Years conſtantly ſent to *Roven* in *Normandy*, to be refined: There is alſo made of this *Sugar* an excellent *Syrup* of *Maiden-hair* and other *Capillary* Plants, prevalent againſt the *Scorbut*; though Mr. *Ray* thinks otherwiſe, by reaſon of the *Saccharine* Subſtance remaining in the Decoction: See *Synopſ. Stirp.* & *Tom.* iii. *Dendrolog. de Acere*, p. 93, 94.

CHAP. XII.

Of the Sycomor.

Sycomor. 1 THE *Sycomor*, or *wild Fig-tree* (falſly ſo called) is our *Album*, *Acer majus*, or broad-leav'd *Mas*, one of the *Maples*, and is much more in Reputation for its *Shade* than it deſerves; for the *Honey-dew* Leaves, which fall early (like thoſe of the *Aſh*) turn to *Mucilage* and noxious *Inſects*, and putrifie with the firſt Moiſture of the Seaſon; ſo as they *contaminate* and mar our *Walks*; and are therefore by my Conſent to be baniſhed from all curious *Gardens* and *Avenues*. 'Tis raiſed of the *Keys* in the *Husk* (as ſoon as ripe) they come up the firſt *Spring*; alſo by *Roots* and *Layers*, in Ground moiſt, not over-wet or ſtiff, and to be *governed* as other *Nurſery Plants*.

Uses. 2. There is in *Germany* a better Sort of *Sycomor* than ours (nor are ours *Indiginæ*) wherewith they make *Saddle-trees*, and divers other Things of uſe; our own is excellent for *Trenchers*, *Cart*, and *Plow-Timber*, being light, tough, and not much inferior to *Aſh* it ſelf; and if the *Trees* be very tall and handſome, are the more tolerable for *diſtant Walks*, eſpecially where other better Trees proſper not ſo well, or where a ſudden *Shade* is expected: Some commend them to thicken *Copſes*, eſpecially in *Parks*, as leaſt apt to the Spoil of *Deer*, and that it is good *Fire-wood*. This *Tree* being *wounded*, bleeds a great Part of the Year; and the *Liquor* emulating that of the *Birch*, which for hapning to few of the reſt (that is, to bleed *Winter* and *Summer*) I therefore mention: The *Sap* is ſweet and wholſome, and in a ſhort Time yields ſufficient Quantity to *brew* with; ſo as with one Buſhel of *Malt*, is made as good *Ale* as four *Buſhels* with ordinary Water, upon Dr. *Tongue*'s Experience, *Tranſact.* Vol. iv. Fol. 917.

CHAP. XIII.

Of the Lime-Tree.

Lime-Tree. 1. *Tilia*, the *Lime-tree*, or [*Linden*] is of two Kinds; the *Male* (which ſome allow to be but a finer Sort of *Elm*) or *Maple* rather, is harder, fuller of *Knots*, and of a redder Colour; but producing neither *Flower* nor *Seed* (ſo conſtantly and ſo mature with us) as does the Female, whoſe *Bloſſom* is alſo very odoriferous, perfuming the

the *Air*, the *Leaf* larger; the *Wood* is likewiſe thicker, of ſmall Pith, and not obnoxious to the *Worm*; ſo as it ſeems *Theophraſtus de Plin.* Lib. iii. Cap. x. ſaid true, That though they were of both Sexes, διαφέρει ἢ τῇ μορφῇ τῇ ὅλῃ, *&c.* yet *they totally differed as to their Form.* We ſend commonly for this Tree into *Flanders* and *Holland*, (which indeed grow not ſo naturally wild with us) to our exceſſive Coſt, whiles our own *Woods* do in ſome Places *ſpontaneouſly* produce them; and though of ſomewhat a ſmaller Leaf, yet altogether as good, apt to be *civilized* and made more *florid*: From thence I have received many of their *Berries*; ſo as it is a ſhameful Negligence, that we are no better provided of *Nurſeries* of a Tree ſo choice and univerſally acceptable: For ſo they may be raiſed either of the *Seeds* in *October*, or (with better Succeſs) by the *Suckers* and *Plants*, which are treated after the ſame *Method*, and in as great abundance as the *Elm*, like to which it ſhould be cultivated. You may know whether the *Seeds* be *prolifick*, by ſearching the *Husk*; if biting, or cutting it ſunder it be *full* and *white*, and not *husky*, as ſometimes we find the *Foreigners*: Be ſure to collect your *Seed* in dry Weather, airing it in an open *Room*, and reſerving it in *Sand* (as has been taught) till *Mid-February*, when you may ſow it in pretty ſtrong, freſh and *loamy Mould*, kept ſhaded and moiſt, as the Seaſon requires, and clear of Weeds; and at the Period of two Years, *plant* them out, *dreſſed* and *pruned*, as Diſcretion ſhall adviſe. But not only by the *Suckers* and *Layers* at the *Roots*, but even by *Branches* lopp'd from the *Head*, may this *Tree* be propagated; and peeling off a little of the *Bark*, at a competent Diſtance from the *Stem* or *Arms*, and covering it with *Loam* mingled with rich *Earth*, they will ſhoot their *Fibres*, and may be ſeaſonably ſeparated: But to facilitate *this* and the like Attempts, it is adviſable to apply a *Ligature* above the Place, when the *Sap* is *aſcending*, or beneath it, when it (as they ſay vulgarly) *deſcends*. From *June* to *November* you may *lay* them; the *Scrubs* and leſs erect, do excellently to thicken *Copſes*, and will yield luſty *Shoots*, and uſeful *Fire-wood*.

2. The *Lime-tree* affects a rich feeding loamy Soil; in ſuch Ground their Growth will be moſt incredible for Speed and Spreading. They may be planted as big as one's Leg; their *Heads* topp'd at about ſix or eight Foot *Bole*; thus it will become (of all other) the moſt proper and beautiful for *Walks*, as producing an upright *Body*, ſmooth and even *Bark*, ample *Leaf*, ſweet *Bloſſom*, the Delight of *Bees*, and a goodly *Shade* at Diſtance of eighteen or twenty-five Foot. They are alſo very patient of *Pruning*; but if it taper over-much, ſome of the collateral Boughs would be ſpared or cut off, to check the *Sap*, which is beſt to be done about *Midſummer*; and to make it grow upright, take off the *prepondering* Branches with Diſcretion, and ſo you may correct any other Tree, and redreſs its Obliquity.

The *Root* in tranſplanting would not be much lopp'd; and this (ſays Mr. *Cook*) is a good *Leſſon* for all young planted *Trees*.

3. The *Prince-Elector* did lately remove very great *Lime-trees* out of one of his *Foreſts*, to a ſteep Hill, exceedingly expoſed to the Heat of the *Sun*, at *Heildelberg*, and that in the midſt of *Summer*: They grow behind that ſtrong *Tower* on the *South-weſt*, and moſt *torrid* Part of the Eminence, being of a dry reddiſh barren Earth; yet do they proſper rarely well: But the Heads were cut off, and the *Pits* into which they were tranſplanted, were (by the Induſtry and Direction of

BOOK I. Mounſieur *de Son*, a *Frenchman*, and an admirable *Mechanician*, who himſelf related it to me) filled with a Compoſition of *Earth* and *Cow-dung*, which was exceedingly beaten, and ſo *diluted* with Water, as it became almoſt a liquid *Pap:* It was in *this* that he plunged the *Roots*, covering the Surface with the Turf: A ſingular *Example* of removing ſo ſo *great Trees* at ſuch a *Seaſon*, and therefore by me taken Notice of here expreſly. Other Perfections of the *Tree* (beſides its unparallel'd Beauty for *Walks*) are, that it will grow in almoſt *all* Grounds: That it laſts *long*; that it ſoon *heals* its *Scars*; that it affects *Uprightneſs*; that it ſtoutly reſiſts a *Storm*; that it ſeldom becomes *hollow*.

USES. 4. The *Timber* of a well-grown *Lime* is convenient for any Uſe that the *Willow* is; but much to be preferred, as being both ſtronger, and yet lighter; whence *Virgil* calls them *Tilias leves*; and therefore fit for *Yokes*, and to be *turned* into *Boxes* for the *Apothecaries*; and *Columella* commends *Arculas Tiliaceas*. And becauſe of its *Colour* and eaſy working, and that it is not ſubject to ſplit, *Architects* make with it *Models* for their deſigned *Buildings*; and the *Carvers* in *Wood*, not only for ſmall *Figures*, but large *Statues* and entire *Hiſtories*, in *Baſs* and *high Relieve*; witneſs (beſides ſeveral more) the *Lapidation* of St. *Stephen*, with the *Structures* and *Elevations* about it: The *Trophies*, *Feſtoons*, *Frutages*, *Encarpa*, and other *Sculptures* in the *Frontoons*, *Freezes*, *Capitals*, *Pedeſtals*, and other Ornaments and *Decorations* (of admirable Invention and Performance) to be ſeen about the *Choir* of St. *Paul*'s and other *Churches*; Royal *Palaces*, and Noble Houſes in City and Country: All of them the *Works* and *Invention* of our *Lyſippus*, Mr. *Gibbons*, comparable, and for ought appears, equal to any Thing of the *Antients*; having had the *Honour* (for ſo I account it) to be the *firſt* who recommended this great *Artiſt* to his Majeſty, *Charles* II. I mention it on this Occaſion, with much Satisfaction. With the *Twigs*, they made *Baskets* and *Cradles*, and of the ſmoother Side of the *Bark*, *Tablets* for *Writing*; for the ancient *Philyra* is but our *Tilia*; of which *Munting* affirms, he ſaw a *Book* made of the inward *Bark*, written about a thouſand Years ſince. Such another was brought to the *Count* of St. *Amant*, Governor of *Arras*, 1662. for which there was given eight thouſand *Ducats* by the *Emperor*, and that it contained a Work of *Cicero*, *De Ordinanda Republica*, *&* *de Inventendis Orationum Exordiis*; a Piece ineſtimable, never publiſhed; is now in the *Library* at *Vienna*, after it had formerly been the greateſt Rarity in that of the late Cardinal *Mazarine:* Other *Papyraceous Trees* are mentioned by *Weſt-Indian* Travellers, eſpecially in *Hiſpaniola*, *Java*, *&c.* which not only exceed our largeſt *Paper* for Breadth and Length, and may be written on on both Sides, but is comparable to our beſt *Vellum*. *Bellonius* ſays, That the *Grecians* made *Bottles* of the *Tilia*, which they finely *rozined* within-ſide, ſo likewiſe for *Pumps* of *Ships*, alſo *Lattices* for *Windows*: *Shoemakers* uſe *Dreſſers* of the *Plank* to cut *Leather* on, as not ſo hard as to turn the Edges of their *Knives*; and even the coarſeſt *Membrane*, or *Slivers* of the *Tree* growing betwixt the *Bark* and the main *Body*, they now twiſt into *Baſs-ropes*; beſides, the *Trunchions* make a far better *Coal* for *Gun-Powder* than that of *Alder* it ſelf: *Scriblets* for *Painters firſt Draughts* are alſo made of its *Coals*; and the extraordinary *Candor* and *Lightneſs*, has dignified it above all the *Woods* of our *Foreſt*, in the Hands of the Right Honourable the *White-*

ſtave Officers of his Majeſty's *Imperial* Court. Thoſe Royal *Plantations* of theſe Trees in the *Parks* of *Hampton-Court* and St. *James's*, will ſufficiently inſtruct any Man how theſe (and indeed all other *Trees* which ſtand ſingle) are to be governed and defended from the Injuries of *Beaſts*, and ſometimes more *unreaſonable* Creatures, till they are able to protect themſelves. In *Holland* (where the very *High-ways* are adorned with them) they frequently clap three or four *Deal-boards* (in manner of a cloſe Trunk) about them; but it is not ſo well; becauſe it keeps out the *Air*, which ſhould have free Acceſs and Intercourſe to the *Bole*, and by no means be excluded from flowing freely about them, or indeed any other *Trees*, provided they are ſecured from Cattle, and the Violence of impetuous Winds, *&c.* as his *Majeſty's* are, without thoſe cloſe *Coffins*, in which the *Dutchmen* ſeem rather to bury them alive: In the mean Time, is there a more raviſhing or delightful Object, than to behold ſome entire *Streets*, and whole *Towns* planted with theſe *Trees*, in even Lines before their Doors, ſo as they ſeem like *Cities* in a *Wood?* This is extreamly freſh, of admirable Effect againſt the *Epilepſy*, for which the delicately ſcented *Bloſſoms* are held prevalent, and skreen the Houſes both from *Winds*, *Sun* and *Duſt*; than which there can be nothing more deſirable where Streets are much frequented. For thus CH. XIII.

[a] *The ſtately* Lime, *ſmooth, gentle, ſtreight and fair,*
(*With which no other* Dryad *may compare*)
With verdant Locks, and fragrant Bloſſoms deckt,
Does a large, even, odorate Shade project.

Diræ and *Curſes* therefore on thoſe *inhumane* and ambitious *Tyrants*, who, not contented with their own *Dominions*, invade their peaceful Neighbour, and ſend their *Legions*, without Diſtinction, to deſtroy and level to the Ground ſuch venerable and goodly *Plantations*, and noble *Avenues*, irreparable Marks of their *Barbarity!*

The Diſtance for *Walks* (as we ſaid) may, in rich Ground, be *twenty-five Foot*; in more ordinary Soil, *eighteen* or *twenty*. For a moſt *prodigious* Tree of this Kind, ſee *Chap.* xxx. *Sect.* x.

The *Berries*, reduced to Powder, cure the *Dyſſentery*, and ſtop *Blood* at the Noſe: The diſtilled *Water* is good againſt the *Epilepſy*, *Apoplexy*, *Vertigo*, Trembling of the *Heart*, *Gravel*. *Schroder* commends a *Mucilage* of the *Bark* for Wounds, *repellens Urinam, & Menſes ciens*, &c. And I am told, the Juice of the *Leaves* fixes Colours.

CHAP. XIV.

Of the Poplar, Aſpen and Abele.

1. POPULAR. *Populus.* I begin this ſecond *Claſs* (according to our former *Diſtribution*) with the *Poplar*, of which there are ſeveral Kinds, *White*, *Black*, &c. (which in *Candy* 'tis reported bears Seed) beſides

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[a] Stat *Philyra*; haud omnes formoſior altera ſurgit
Inter *Hamadryades*; molliſſima, candida, lævis,
Et viridante comâ & benevolenti flore ſuperba,
Spargit odoratam latè, atque æqualiter umbram. COULEII Lib. vi. *Plin.*

the

Book I. the *Aſpen*. The *White* (famous heretofore for yielding its *Umbram Hoſpitalem*) is the moſt ordinary with us, to be raiſed in abundance by every *Set* or *Slip*. Fence the Ground as far as any old *Poplar*-roots extend, they will furniſh you with *Suckers* innumerable, to be ſlipped from their *Mothers*, and *tranſplanted* the very firſt Year: But if you cut down an old Tree, you ſhall need no other *Nurſery*. When they are young, their *Leaves* are ſomewhat broader and rounder (as moſt other *Trees* are) than when they grow aged. In moiſt and *boggy* Places they will flouriſh wonderfully, ſo the Ground be not *ſpewing*, but eſpecially near the *Margins* and Banks of *Rivers*.

Populus in fluviis ——

and in low, ſweet and fertile Grounds; yea, and in the drier likewiſe. Alſo *Trunchions* of ſeven or eight Foot long, thruſt two Foot into the *Earth* (a Hole being made with a ſharp hard *Stake*, filled with *Water*, and then with fine *Earth* preſſed in, and cloſe about them) when once *rooted*, may be cut at ſix Inches above Ground; and thus placed at a Yard diſtant, they will immediately furniſh a Kind of *Copſe*. But in Caſe you plant them of *rooted Trees*, or ſmaller *Sets*, fix them not ſo *deep*; for though we bury the *Trunchions* thus profound, yet is the *Root* which they ſtrike commonly but ſhallow. They will make prodigious *Shoots* in fifteen or ſixteen Years; but then the *Heads* muſt by no means be diminiſhed, but the lower Branches may, yet not too far up; the *Foot* would alſo be cleanſed every ſecond Year. This for the *White*. The *black Poplar* is frequently *pollar'd*, when as big as one's Arm, eight or nine Foot from the Ground, as they trim them in *Italy*, for their *Vines* to ſerpent and twiſt on, and thoſe they *poll*, or *head* every ſecond Year, ſparing the middle, ſtreight, and thrivingeſt *Shoot*, and at the third Year cut him alſo. There be yet that condemn the *Pruning* of this *Poplar*, as hindering their Growth.

2. The *Shade* of this *Tree* is eſteemed very wholſome in *Summer*, but they do not become Walks or *Avenues*, by reaſon of their *Suckers*, and that they foul the Ground at Fall of the Leaf; but they would be planted in barren *Woods*, and to flank Places at Diſtance for their Increaſe, and the glittering Brightneſs of their Foliage: The *Leaves* are good for *Cattle*, which muſt be ſtripp'd from the cut Boughs before they are fagotted. This to be done in the Decreaſe of *October*, and reſerved in Bundles for Winter *Fodder*. The *Wood* of *white Poplar* is ſought of the *Sculptor*, and they *ſaw* both Sorts into *Boards*, which, where they lie dry, continue a long Time. Of this Material they alſo made *Shields* of Defence in *Sword* and *Buckler*-days. *Dioſcorides* writes, that the *Bark* chopp'd ſmall, and ſowed in Rills, well and richly manured and watered, will produce a plentiful Crop of *Muſhrooms*; or warm *Water*, in which *Yeſt* is diſſolved, caſt upon a new-cut *Stump*: It is to be noted, that thoſe *Fungi*, which ſpring from the putrid Stumps of this *Tree*, are not *venenous* (as of all, or moſt other Trees they are) being gathered after the firſt *autumnal* Rains. There is a *Poplar* of a paler Green, and is the propereſt for watry Ground: 'Twill grow of *Trunchions* from two or eight Foot long, and bringing a good *Lop* in a ſhort Time, is by ſome preferred to *Willows*.

Uses.

For the Setting of theſe, Mr. *Cook* adviſes the *boring* of the Ground with a Sort of *Auger*, to prevent the ſtripping of the *Bark* from the Stake in planting: A Foot and half deep, or more if great (for ſome may

may be eight or nine Foot) for *Pollards*, cut ſloping, and free of Cracks at either End: Two or three Inches *Diameter*, is a competent Bigneſs, and the Earth ſhould be rammed cloſe to them

Another Expedient is, by making *Drains* in very moiſt Ground, two Spade deep, and three Foot wide, caſting up the Earth between the *Drains*, ſowing it the firſt Year with *Oats*, to mellow the Ground; the next Winter ſetting it for *Copſe*, with *theſe*, any, or all the watry Sorts of Trees: thus, in four or five Years, you will have a handſome *Fell*, and ſo ſucceſſively. It is in the former *Author*, where the Charge is exactly calculated, to whom I refer the *Reader*. I am informed, that in *Cheſhire* there grow many ſtately and ſtreight *black Poplars*, which they call *Peplurus*, that yield Boards and Planks of an Inch and half Thickneſs; ſo fit for *Flooring* of Rooms, by ſome preferred to *Oak*, for the Whiteneſs and laſting, where they lie dry.

3. They have a *Poplar* in *Virginia* of a very peculiar ſhaped *Leaf*, as if the Point of it were cut off, which grows very well with the *Curious* amongſt us to a conſiderable Stature. I conceive it was firſt brought over by *John Tradeſcant*, under the Name of the *Tulip-tree* (from the Likeneſs of its *Flower*) but is not, that I find, taken much Notice of in any of our *Herbals*: I wiſh we had more of them; but they are difficult to elevate at firſt.

4. The *Aſpen* only (which is that Kind of *Lybica*, or *white Poplar*) bearing a ſmaller and more tremulous Leaf (by the *French* call'd *la Tremble*, or *Quaker*) thruſts down a more ſearching Foot, and in this likewiſe differs, that *he* takes it *ill* to have his *Head* cut off: *Pliny* would have ſhort *Trunchions* couched two Foot in the Ground (but firſt two Days dried) at one Foot and half Diſtance, and then moulded over.

5. There is ſomething a finer Sort of *white Poplar*, which the *Dutch* call *Abele*, and we have of late *Abele* much tranſported out of *Holland*: Theſe are alſo beſt propagated of *Slips* from the *Roots*, the leaſt of which will *take*, and may in *March*, at three or four Years Growth, be tranſplanted.

6. In *Flanders* (not in *France*, as a late Author *pretends*) they have large *Nurſeries* of them, which firſt they plant at one Foot Diſtance, the Mould light and moiſt, by no means *clayie*, in which, though they may ſhoot up tall, yet for want of Root, they never ſpread; for, as I ſaid, they muſt be *interred* pretty deep, not above three Inches above Ground, and kept clean, by *pruning* them to the *middle Shoot* for the firſt two Years, and ſo till the third or fourth. When you *tranſplant*, place them at eight, ten or twelve Foot Interval: They will likewiſe grow of *Layers*, and even of *Cuttings* in very moiſt Places. In *three Years* they will come to an incredible Altitude; in *twelve* be as big as your Middle; and in *eighteen* or *twenty*, arrive to full Perfection. A *Specimen* of this Advance we have had of an *Abele* Tree at *Sion*, which being lopped in *February* 1651, did, by the End of *October* 52, produce Branches as big a Man's Wriſt, and ſeventeen Foot in Length; for which Celerity we may recommend them to ſuch late *Builders* as ſeat their *Houſes* in naked and unſheltered Places, and that would put a Guiſe of *Antiquity* upon any new *Incloſure*; ſince by theſe, whilſt a Man is in a *Voyage* of no long Continuance, his *Houſe* and *Lands* may be ſo covered, as to be hardly known at his Return. But as they thus increaſe in *Bulk*, their *Value* (as the *Italian Poplar* has taught us) advances likewiſe; which after the firſt ſeven Years, is annually worth

BOOK I. *Twelve Pence* more: So as the *Dutch* look upon a *Plantation* of theſe *Trees*, as an ample Portion for a *Daughter*, and none of the leaſt Effects of their good *Husbandry*; which truly may very well be allowed, if that *Calculation* hold, which the late worthy * *Knight* has aſſerted, (who began his *Plantation* not long ſince about *Richmond*) that thirty *Pound* being laid out in theſe *Plants*, would render at the leaſt *ten thouſand Pounds* in *eighteen Years*; every *Tree* affording *thirty Plants*, and every of them *thirty* more, after each *ſeven Years* improving *twelve Pence* in Growth, till they arrive to their *Acme*.

* Sir *Richard Weſton.*

7. The *black Poplar* grows rarely with us; it is a ſtronger and taller Tree than the *White*, the *Leaves* more dark, and not ſo ample. Divers ſtately ones of theſe, I remember about the Banks of *Po* in *Italy*; which flouriſhing near the old *Eridanus* (ſo celebrated by the *Poets*) in which the temerarious *Phaeton* is ſaid to have been *precipitated*, doubtleſs gave Argument to that *Fiction* of his ſad Siſter's *Metamorphoſis*, and the *Amber* of their precious *Tears*. It was whiles I was paſſing down that River towards *Ferrara*, that I diverted my ſelf with this Story of the ingenious *Poet*. I am told there is a *Mountain Poplar* much propagated in *Germany* about *Vienna*, and in *Bohemia*, of which ſome Trees have yielded *Planks* of a Yard in Breadth; Why do we procure none of them?

USES. 8. The beſt Uſe of the *Poplar* and *Abele* (which are all of them *hoſpitable* Trees, for any Thing thrives under their *Shades*) is for *Walks* and *Avenues* about Grounds which are ſituated low, and near the Water, till coming to be very old, they are apt to grow *knurry*, and out of Proportion. The *Timber* is incomparable for all Sorts of white *wooden Veſſels*, as *Trays*, *Bowls*, and other *Turner*'s Ware; and of eſpecial Uſe for the *Bellows-maker*, becauſe it is almoſt of the Nature of *Cork*, and for *Ship-pumps*, though not very ſolid, yet very cloſe, and yet light; ſo as it may be uſed for the *Soles*, as well as *Wooden-heels* of *Shoes*, &c. *Vitruvius l. de materia cædenda*, reckons it among the Building-timbers, *quæ maximè in ædificiis ſunt idoneæ.* Likewiſe to make *Carts*, becauſe it is exceeding light; for *Vine*, and *Hop-props*, and divers *vimineous* Works. The Loppings in *January* are for the *Fire*; and therefore ſuch as have proper Grounds, may with Eaſe, and in ſhort Time, ſtore themſelves for a conſiderable *Family*, where *Fuel* is dear: But the Truth is, it burns untowardly, and rather moulders away, than maintains any ſolid Heat. Of the Twigs (with the Leaves on) are made *Brooms*. The *Brya*, or *Catkins*, attract the *Bees*, as do alſo the *Leaves* (eſpecially of the *Black*) more tenacious of the *Meldews* than moſt *Foreſt-trees*, the *Oak* excepted.

Of the *Aſpen*, our *Wood-men* make *Hoops*, *Fire-wood* and *Coals*, *&c.* and of the *Bark* of young Trees, in ſome Countries, it ſerves for *Candle* or *Torch-wood*.

The Juice of *Poplar* Leaves, dropped into the Ears, aſſwages the Pain; and the *Buds* contuſed, and mix'd with *Honey*, is a good *Collyrium* for the *Eyes*; as the *Unguent* to refrigerate and cauſe *Sleep*.

One Thing more is not to be paſſed over, of the *White-Poplar*; that the *Seeds* of *Miſſelto* being put into Holes bored in the Bark of this Tree, have produced the *Plant*: Experiment ſufficient to determine that ſo long controverted *Queſtion*, concerning *ſpontaneous* and *æquivocal Generations*. *Vid.* D. *Raij.* P. L. *Append.* p. 1918.

CHAP.

CHAP. XV.

Of the Quick-Beam.

1. THE *Quick-beam* [*Ornus*, or as the *Pinax* more peculiarly, *Fraxinus bubula*; others, the *Wild Sorb*] or (as ſome term it) the *Witchen*, is a *Species* of *Wild-Aſh*. The *Berries* which it produces in *October*, may then be ſown; or rather the *Sets* planted: I have Store of them in a warm *Grove* of mine, and 'tis of ſingular Beauty: It riſes to a reaſonable Stature, ſhoots upright and ſlender, and conſiſts of a fine ſmooth *Bark*. It delights to be both in *Mountains* and *Woods*, and to fix it ſelf in good light Grounds; *Virgil* affirms, 'twill unite with the *Pear*. QUICK-BEAM.

2. Beſides the Uſe of it for the *Husbandman*'s *Tools*, *Goads*, &c. the *Wheel-wright* commends it for being all *Heart*; if the *Tree* be large, and ſo well grown as ſome there are, it will *ſaw* into *Planks*, *Boards* and *Timber*, (*vide* Chap. xxx. Sect. x.) and our *Fletchers* commend it for *Bows* next to *Yew*; which we ought not to paſs over, for the Glory of our *once* right *Engliſh* Anceſtors: In a *Statute* of *Hen.* VIII. you have it mentioned: It is excellent *Fuel*; but I have not yet obſerved any other Uſe, ſave that the *Bloſſoms* are of an agreeable Scent, and the *Berries* ſuch a tempting Bait for the *Thruſhes*, that as long as they laſt, you ſhall be ſure of their Company. Some highly commend the *Juice* of the *Berries*, which (fermenting of it ſelf) if well preſerved, makes an excellent Drink againſt the *Spleen* and *Scurvy*: *Ale* and *Beer* brewed with theſe *Berries*, being ripe, is an incomparable Drink, familiar in *Wales*, where this *Tree* is reputed ſo *ſacred*, that as there is not a *Church-yard* without one of them planted in them (as among us the *Yew*) ſo on a certain Day in the Year, every Body religiouſly wears a *Croſs* made of the *Wood*, and the *Tree* is by ſome Authors called *Fraxinus Cambro-Britannica*; reputed to be a Preſervative againſt *Faſcinations* and *Evil-Spirits*; whence, perhaps, we call it *Witchen*; the *Boughs* being ſtuck about the Houſe, or the *Wood* uſed for Walking-Staves. USES.

CHAP. XVI.

Of the Haſel.

1. NUX *Silveſtris*, or *Corylus*, the *Haſel*, is beſt raiſed from the * *Nuts* (alſo by *Suckers* and *Layers*) which you ſhall ſow like *Maſt*, in a pretty deep *Furrow*, toward the End of *February*; or treat them as you are inſtructed in the *Walnut*; light Ground may immediately be ſown and *harrow'd-in* very accurately; but in Caſe the *Mould* be *Clay*, Plow it earlier, and let it be ſufficiently mellowed with the Froſts; and then the third Year cut your *Trees* near to the Ground with a ſharp *Bill*, the *Moon* decreaſing. HASEL.

* *De Nucum generibus, vide Macrob. Sect.* L. xi. c. xiv.

2. But if you would make a *Grove* for Pleaſure, plant them in *Foſſes*, at a *Yard* Diſtance, and *cut* them within half a Foot of the Earth, dreſſing them for three or four *Springs* and *Autumns*, by only looſening the

Book I. the *Mould* a little about their *Roots*. Others there are, who ſet the *Nuts* by Hand at one Foot Diſtance, to be *tranſplanted* the third Year, at a Yard aſunder: But this Work is not to be taken in hand ſo ſoon as the *Nuts* fall, till Winter be well advanced; becauſe they are exceedingly obnoxious to the *Froſts*; nor will they ſprout till the Spring; beſides, *Vermin* are great Devourers of them: Preſerve them therefore *moiſt*, not *mouldy*, by laying them in their own *dry* Leaves, or in Sand, till *January*.

[a] *Haſels from Sets and Suckers take.*

3. From whence they thrive very well, the *Shoots* being of the Scantlings of ſmall *Wands* and *Switches*, or ſomewhat bigger, and ſuch as have drawn divers *hairy* Twigs, which are by no means to be disbranched, no more than their *Roots*, unleſs by a very ſparing and diſcreet Hand. Thus, your *Coryletum*, or *Copſe* of *Haſels*, being planted about *Autumn*, may (as ſome practiſe it) be cut within three or four Inches of the Ground the Spring following, which the new *Cyon* will ſuddenly repair in Cluſters, and Tufts of fair *Poles* of twenty, or ſometimes thirty Foot long: But I rather ſhould ſpare them till two or three Years after, when they ſhall have taken ſtrong hold, and may be cut cloſe to the very Earth, the improſperous and feeble ones eſpecially. Thus are likewiſe *Filberts* to be treated, both of them improved much by *tranſplanting*, but chiefly by *graffing*, and it would be tried with *Filberts*, and even with *Almonds* themſelves, for more elegant Experiments.

In the mean Time, I do not confound the *Filbert*, *Pontic* or *Filbord*, diſtinguiſhed by its *Beard*, among our *Foreſters* (or bald *Haſelnuts*) which doubtleſs we had from Abroad; and bearing the Names of *Avelan*, *Avelin*, as I find in ſome ancient *Records* and *Deeds* in my Cuſtody, where my Anceſtors Names were written *Avelan*, alias *Evelin*, generally.

4. For the *Place*, they above all affect *cold*, *barren*, *dry* and *ſandy* Grounds; alſo *Mountains*, and even *rocky* Soils produce them; and where *Quarries* of *Freeſtone* lie underneath, as that at *Haſulberry* in *Wilts*, *Haſeling-field* in *Cambridge-ſhire*, *Haſelmeer* in *Surrey*, and other Places; but more plentifully, if the Ground be ſomewhat moiſt, dankiſh and moſſie, as in the freſher *Bottoms*, and Sides of *Hills*, *Hoults*, and in *Hedge-rows*. Such as are maintained for *Copſes*, may after twelve Years be fell'd the firſt Time; the next, at ſeven or eight, *&c.* for by this Period, their *Roots* will be compleatly vigorous. You may plant them from *October* to *January*, provided you keep them carefully *weeded*, till they have taken faſt hold; and there is not among all our Store, a more profitable Wood for *Copſes*, and therefore good *Husbands* ſhould ſtore them with it.

Uses. 5. The Uſe of the *Haſel* is for *Poles*, *Spars*, *Hoops*, *Forks*, *Angling-Rods*, *Faggots*, *Cudgels*, *Coals*, and *Springs* to catch *Birds*; and it makes one of the beſt *Coals*, once uſed for *Gun-powder*, being very fine and light, till they found *Alder* to be more fit: There is no Wood which purifies *Wine* ſooner, than the *Chips* of *Haſel*: Alſo for *Withs* and *Bands*, upon which I remember, *Pliny* thinks it a pretty *Speculation*, that a Wood ſhould be ſtronger to bind withal, being

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[a] Plantis & duræ Coryli naſcuntur—— *Georg.* ii.

bruis'd

bruis'd and *divided*, than when *whole* and *entire*: The *Coals* are uſed by *Painters*, to draw with like thoſe of *Sallow*: Laſtly, for riding *Switches*, and *Divinatory Rods*, for the detecting and finding out of *Minerals* (at leaſt, if that *Tradition* be no Impoſture) is very wonderful, by whatſoever *occult Virtue*, the *Forked-ſtick* (ſo cut, and skilfully held) becomes *impregnated* with thoſe *inviſible Steams* and *Exhalations*; as by its *ſpontaneous Bending* from an *horizontal* Poſture, to diſcover not only *Mines* and *ſubterraneous Treaſure*, and *Springs* of *Water*, but *Criminals* guilty of *Murther*, *&c.* made out ſo *ſolemnly*; and the *Effects* thereof, by the *Atteſtation* of *Magiſtrates*, and divers other learned and credible Perſons (who have *critically* examined *Matters* of *Fact*) is certainly next to *Miracle*, and requires a ſtrong Faith. Let the *Curious* therefore conſult that *Philoſophical Treatiſe* of * Dr. *Vallemont*; which will at leaſt entertain them with a world of ſurprizing Things. But now after all the moſt ſignal Honour it was ever employed in, and which might deſervedly exalt this humble and common *Plant* above all the *Trees* of the *Wood*, is that of *Hurdles* (eſpecially the flexible *White*, the *Red* and brittle) not for that it is generally uſed for the folding of our innocent *Sheep*, an Emblem of the *Church*, but for making the *Walls* of one of the firſt *Chriſtian Oratories* in the World; and particularly in this *Iſland*, that venerable and ſacred Fabrick at *Glaſtenbury*, founded by St. *Joſeph* of *Arimathea*; which is ſtoried to have been firſt compoſed but of a few ſmall *Haſel-Rods* interwoven about certain *Stakes* driven into the Ground; and Walls of this Kind, inſtead of *Laths* and *Punchions*, ſuperinduced with a coarſe *Mortar* made of *Loam* and *Straw*, do to this Day incloſe divers humble *Cottages*, *Sheds* and *Out-houſes* in the Country; and 'tis ſtrong and laſting for ſuch Purpoſes, *whole* or *cleft*, and I have ſeen ample Encloſures of *Courts* and *Gardens* ſo ſecured.

* *Vallemont, Phiſique Occult ou Traite de la Baguet Divinitoire, &c.* But concerning the *Exploration*, and ſuperſtitious Original, *See* Sir *Thomas Brown, Vulg. Err.* Cap. xxiv. Sect. xvii. and the Commentators upon iv. *Hoſea* 12.

6. There is a compendious Expedient for the thickning of *Copſes* which are too *tranſparent*, by laying of a *Sampler*, or *Pole*, of an *Haſel*, *Aſh*, *Poplar*, *&c.* of twenty or thirty Foot in Length (the Head a little lopp'd) into the Ground, giving it a *Chop* near the Foot, to make it ſuccumb; *this* faſtned to the Earth with a *Hook* or two, and covered with ſome freſh *Mould* at a competent Depth (as *Gardeners* lay their *Carnations*) will produce a world of *Suckers*, thicken and furniſh a *Copſe* ſpeedily. I add no more of *Filberts*, a kinder and better Sort of *Haſel-nut*, of larger and *longer* Shape and *Beard*; the *Kernels* alſo covered with a fine Membrane, of which the *Red* is more delicate: They both are propagated as the *Haſel*, and while more domeſtick, planted either aſunder, or in *Paliſade*, are ſeldom found in the *Copſes*: They are brought among other *Fruit* to the beſt *Tables* for Deſert, and are ſaid to *fatten*, but too much eaten, obnoxious to the *Aſthmatic*. In the mean Time, of this I have had Experience, that *Haſel-nuts*, but the *Filbert* ſpecially, being full ripe, and peeled in *Warm-water* (as they *blanch Almonds*) make a *Pudding* very little (if at all) inferior to that our *Ladies* make of *Almonds*. But I am now come to the *Water-ſide*; let us next conſider the *Aquatic*.

CHAP. XVII.

Of the Birch.

BIRCH. 1. THE *Birch* [*Betula*, in *Britiſh*, *Bedw*, doubtleſs a proper *Indigene* of *England* (whence ſome derive the Name of *Barkſhire*) though *Pliny* calls it a *Gauliſh* Tree] is altogether produced of *Roots* or *Suckers* (though it ſheds a Kind of *Samera* about the *Spring*) which being planted at four or five Foot Interval, in ſmall Twigs, will ſuddenly riſe to *Trees*, provided they affect the Ground, which cannot well be too barren or *ſpongy*; for it will thrive both in the Dry and the Wet, Sand, and Stony, *Marſhes* and *Bogs*; the *Water-galls*, and *uliginous* Parts of *Foreſts*, that hardly bear any Graſs, do many times ſpontaneouſly produce it in abundance, whether the Place be high or low, and nothing comes amiſs to it. Plant the ſmall *Twigs*, or *Suckers* having *Roots*, and after the firſt Year cut them within an *Inch* of the Surface; this will cauſe them to ſprout in ſtrong and luſty *Tufts*, fit for *Copſe* and *Spring-woods*; or, by reducing them to one *Stem*, render them in a very few Years fit for the *Turner*. For,

USES. 2. Though *Birch* be of all other the worſt of *Timber*, yet has it its various Uſes, as for the *Husbandman's Ox-yoaks*; alſo for *Hoops*, ſmall *Screws*, *Paniers*, *Brooms*, *Wands*, *Bavin-bands*, and *Wyths* for *Fagots*; and claims a Memory for *Arrows*, *Bolts*, *Shafts* (our old *Engliſh* Artillery) alſo for *Diſhes*, *Bowls*, *Ladles*, and other domeſtic Utenſils, in the good old Days of more Simplicity, yet of *better* and truer *Hoſpitality*. In *New-England* our Northern *Americans* make *Canoos*, *Boxes*, *Buckets*, *Kettles*, *Diſhes*, which they ſow, and joyn very curiouſly with Thread made of *Cedar-roots*, and divers other domeſtical *Utenſils*, as *Baskets*, *Bags*, with this *Tree*, whereof they have a blacker Kind; and out of a certain *Excreſcence* from the *Bole*, a *Fungus*, which being boil'd, beaten and dried in an *Oven*, makes excellent *Spunck*, or *Touch-wood*, and *Balls* to play withal; and being reduced to Powder, *Aſtringent*, is an infallible Remedy in the *Hæmerhoids*. They make alſo not only this *ſmall Ware*, but even *ſmall Craft*, *Pinnaces* of *Birch*, ribbing them with white *Cedar*, and covering them with large Flakes of *Birch-bark*, ſow them with Thread of *Spruſe-roots*, and *pitch* them, as it ſeems we did even here in *Britain* as well as the *Veneti*, making uſe of the *Willow*; whereof *Lucan*,

> [a] *When* Sicoris *to his own Banks reſtor'd*,
> *Had quit the Field*, *of Twigs and* Willow-*board*
> *They build* ſmall Craft, *cover'd with* Bullocks-hide,
> *In which they reach'd the Rivers farther Side:*
> *So ſail the* Veneti, *if* Padus *flow*;
> *The* Britains *ſail on their rough Ocean ſo.*

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[a] Primum cana ſalix madefacto vimine, parvam
Texitur in puppim, cæſoque induta juvenco,
Vectoris patiens, tumidum ſuper emicat amnem.
Sic *Venetus* ſtagnante *Pado*, fuſoque *Britannus*
Navigat Oceano ——

Alſo

Alſo for *Fuel:* In many of the *Moſſes* in the *Weſt-Riding* of *Yorkſhire*, are often dug up *Birch-trees*, that burn and flame like *Fir* and *Candle-wood*; and I think *Pliny* ſays, the *Gauls* extracted a ſort of *Bitumen* out of *Birch.* Great and Small *Coal* are made by the *Charring* of this Wood (ſee *Book* iii. *Chap.* iv. of *Fuel*) as of the *Tops* and *Loppings*, Mr. *Howard*'s new *Tanne.* The inner white *Cuticle* and *ſilken Bark* (which ſtrips off of it ſelf almoſt yearly) was antiently uſed for *Writing-Tables*, even before the Invention of *Paper*; of which there is a *Birch-tree* in *Canada*, whoſe *Bark* will ſerve to write on, and may be made into *Books*, and of the Twigs very pretty *Baskets*; with the outward thicker and coarſer Part of the common *Birch*, are divers Houſes in *Ruſſia*, *Poland*, and thoſe poor *Northern* Tracts covered, inſtead of *Slates* and *Tile:* Nay, one who has lately publiſhed an Account of *Sweden*, ſays, that the poor People grind the very *Bark* of *Birch-trees*, to mingle with their *Bread-Corn.* 'Tis affirmed by *Cardan*, that ſome *Birch-roots* are ſo very extravagantly *veined*, as to repreſent the Shapes and Images of *Beaſts*, *Birds*, *Trees*, and many other pretty Reſemblances. Laſtly, of the *whiteſt* Part of the *old Wood*, found commonly in doating *Birches*, is made the Grounds of our *effeminate farined Gallants Sweet Powder*; and of the quite *conſumed* and *rotten* (ſuch as we find reduced to a Kind of *reddiſh Earth* in *ſuperannuated* hollow Trees) is gotten the beſt Mould for the raiſing of divers *Seedlings* of the rareſt *Plants* and *Flowers*; to ſay nothing here of the *Magiſterial Faſces*, for which anciently the *Cudgels* were uſed by the *Lictor* for lighter Faults, as now the gentler *Rods* by our Tyrannical *Pædagogues.*

See Philoſoph. Tranſ. Vol. IX. Num. cv. p. 93.

3. I ſhould here add the *Uſes* of the *Water* too, had I full Permiſſion to tamper with all the *Medicinal* Virtues of *Trees:* But if the ſoveraign Effects of the *Juice* of this deſpicable *Tree* ſupply its other Defects (which make ſome judge it unworthy to be brought into the *Catalogue of Woods* to be propagated) I may perhaps, for *once*, be permitted to play the *Empiric*, and to gratifie our laborious *Wood-man* with a Draught of his own *Liquor*; and the rather, becauſe theſe Kind of *Secrets* are not yet ſufficiently cultivated; and ingenious *Planters* would by all means be encouraged to make more *Trials* of this Nature, as the *Indians* and other *Nations* have done on their *Palms*, and *Trees* of ſeveral Kinds, to their great Emolument. The *Myſtery* is no more than this: About the Beginning of *March* (when the *Buds* begin to be proud and turgid, and before they explain into *Leaves*) with a *Chizel* and a *Mallet*, cut a *Slit* almoſt as deep as the very *Pith*, under ſome *Bough* or Branch of a well-ſpreading *Birch*; cut it *oblique*, and not *long-ways* (as a good *Chirurgeon* would make his *Orifice* in a *Vein*) inſerting a ſmall *Stone* or *Chip*, to keep the *Lips* of the Wound a little open. Sir *Hugh Plat* (giving a general Rule for the gathering of *Sap*, and *Tapping* of *Trees*) would have it done within one Foot of the Ground, the firſt *Rind* taken off, and then the white Bark ſlit over-thwart, no farther than to the *Body* of the Tree: Moreover, that this *Wound* be made only in that Part of the *Bark* which reſpects the *South-Weſt*, or between thoſe Quarters; becauſe, ſays he, little or no *Sap* riſeth from the *Northern*, nor indeed when the *Eaſt Wind* blows. In this *Slit*, by the Help of your *Knife* to open it, he directs that a *Leaf* of the *Tree* be inſerted, firſt fitted to the Dimenſions of the Slit, from which the *Sap* will diſtil in manner of *Filtration.* Take away the *Leaf*, and

USES.

the

BOOK I. the *Bark* will cloſe again, a little Earth being clapp'd to the Slit. Thus the *Knight*, for any *Tree*. But we have already ſhewed how the *Birch* is to be treated: Faſten therefore a *Bottle*, or ſome ſuch convenient *Veſſel* appendant; this does the Effect as well as *Perforation* or *Tapping:* Out of this Aperture will extil a *limpid* and clear *Water*, retaining an *obſcure Smack* both of the *Taſte* and *Odor* of the *Tree*; and which (as I am *credibly informed*) will in the Space of *twelve* or *fourteen* Days, *preponderate*, and *out-weigh* the whole *Tree* it ſelf, *Body* and *Roots*; which if it be conſtant, and *ſo* happen likewiſe in other *Trees*, is not only ſtupendous, but an *Experiment* worthy the Conſideration of our profoundeſt *Philoſophers: An ex ſola aqua fiunt Arbores?* Whether *Water* only be the *Principle* of *Vegetables*, and conſequently of *Trees:* I ſay, *I am credibly informed*; and therefore the late unhappy * *angry Man* might have ſpared his *Animadverſion:* For he that ſaid but twenty *Gallons* run, does he know how many more might have been gotten out of larger Apertures, at the Inſertion of every *Branch* and *Foot* in the principal *Roots* during the *whole* Seaſon? But I conceive I have good *Authority* for my Aſſertion, out of the *Author* cited in the *Margin*, whoſe Words are theſe: *Si menſe Martio perforaveris* Betulam, *&c. exſtillabit aqua limpida, clara, & pura, obſcurum Arboris ſaporem & odorem referens, quæ ſpacio xij aut xiv dierum. Præponderabit Arbori cum Ramis & Radicibus, &c.* His Exceptions about the Beginning of *March* are very inſignificant; ſince I undertake not *Punctuality* of Time; and his own *pretended* Experience ſhew'd him, that in *hard Weather* it did not run till the *Expiration* of the Month, or Beginning of *April*; and another Time, on the Tenth of *February*; and uſually, he ſays, about the Twenty-fourth Day, *&c.* at ſuch *Uncertainty:* What *immane Difference* then is there between the Twenty-fourth of *February* and Commencement of *March?* Beſides, theſe *anomolous Bleedings* (even of the ſame Tree) happen early or later, according to the Temper of the *Air* and Weather. In the mean Time, evident it is, that we know of no *Tree* which does more copiouſly attract, be it that ſo much celebrated *Spirit* of the *World* (as they call it) in Form of *Water* (as ſome) or a certain *ſpecifick Liquor* richly *impregnated* with this *balſamical* Property: That there is ſuch a *Magnes* in this ſimple *Tree*, as does manifeſtly draw to it ſelf ſome *occult* and wonderful *Virtue*, is notorious; nor is it conceivable indeed, the Difference between the Efficacy of that *Liquor* which diſtils from the *Bole*, or Parts of the *Tree* nearer to the *Root* (where Sir *Hugh* would *celebrate* the *Inciſion*) and that which *weeps* out from the more ſublime *Branches*, more impregnated with this *aſtral* Virtue, as not ſo near the *Root*, which ſeems to attract rather a cruder and more common *Water*, through fewer *Strainers*, and neither ſo pure and *aerial* as in thoſe refined *Percolations*, the Nature of the Places where theſe *Trees* delight to grow (for the moſt part lofty, dry and barren) conſidered. But I refer theſe Diſquiſitions to the Learned eſpecially, as mentioned by that imcomparable *Philoſopher*, and my moſt noble Friend, the Honourable Mr. *Boyle*, in his *Second Part* of the Uſefulneſs of *Natural Philoſophy*, *Sect.* i. *Eſſay* iii. where he ſpeaks of the *Manna del Corpo*, or *Trunk-Manna*, as well as of that *Liquor* from the *Bough*; alſo of the *Sura*, which the *Cocoa-trees* afford; and that *Polonian* Secret of the Liquor of the *Walnut-tree* Root; with an Encouragement of more frequent *Experiments*, to educe *ſaccharine* Subſtances

* *Dr.* Stubb. *See* the *Tractate*, intitled, *Aditus novus ad Occultas Sympathiæ & Antipathiæ cauſas inveniendas, per principia Philoſophiæ naturalis, & Fermentorum artificiosâ Anatomiâ hauſta, pateſactas, à Silveſtro Rattray*, M. D. *Glaſquenſi*, 1658. p. 55.

ſtances upon theſe Occaſions: But the *Book* being publiſhed ſo long ſince this *Diſcourſe* was firſt *Printed*, I take only here the Liberty to refer the *Reader* to one of the beſt Entertainments in the World. CH. XVII.

But now before we expatiate farther concerning *Saps*; it is by ſome controverted, whether this Exhauſtion would not be an extreme Detriment to the *Growth*, *Subſtance*, and other Parts of Trees: As to the *Growth* and *Bulk*, if what I have obſerved of a *Birch*, which has for very many Years been *perforated* at the uſual Seaſon (beſides the *Scars* made in the *Bark*) it ſtill thrives, and is grown to a prodigious Subſtance, the *Species* conſidered. What it would effect in other Trees (the *Vine* excepted unſeaſonably launced) I know not: But this calls to Mind a Trial of Eſq; *Brotherton* (mentioning ſome *Excortications* and *Inciſions*, by what he obſerved in *Pruning*) that moſt, if not all, of the Sap *aſcends* by the *Lignous* Part of Trees, not the *Cortical*; nor between the *Cortical* and *Lignous*: And that the Increaſe of a Tree's Growth in Thickneſs, is by the *Deſcent* of the *Sap*, and not by the *Aſcent*; ſo as if there were no *Deſcent*, the Tree would increaſe very little, if at all; for that there is a perpetual *Circulation* of the *Sap*, during the whole *Summer*; and whilſt it is in this Courſe, and not a Deſcent, at *Michaelmas* only, as ſome hold, but evaporated by the Branches, during *Summer* and *Autumn*, and at *Spring* ſupplied with Rains. He alſo thinks it probable, that the *Bodies* of *Plants*, as well as thoſe of *Animals*, are nouriſhed and increaſed by a double *Pubulum* or Food; as *Water* and *Air* both *impregnated*, mixing and *coaleſcing* by a mutual *Converſion*.

That all *Plants* and *Animals* ſeem to have a two-fold Kind of *Roots*, *one* ſpreading into the *Earth*, the *other* ſhooting up into the *Air*; which, as they receive and carry up their proper Nutriments to the Body of the Plant and Root, ſo they carry off the uſeleſs *Dregs* and *Recrements*, &c. But this curious *Note* ſeeming fitter to have been placed in our *Chapter* of *Pruning* (upon which this learned *Gentleman* has given us his Experience) I beg Pardon for this *Diverticle*, and return to my Subject.

4. But whilſt the *Second Edition* was under my Hand, there came to me divers *Papers* upon this *Subject*, experimentally made by a worthy *Friend* of mine, a learned and moſt induſtrious Perſon, which I had here once reſolved to have publiſhed, according to the generous Liberty granted me for ſo doing; but underſtanding he was ſtill in purſuit of that *uſeful* and curious *Secret*, I changed my Reſolution into an earneſt Addreſs, that he would *communicate* it to the *World* himſelf, together with thoſe other excellent Enquiries and Obſervations, which he is adorning for the Benefit of *Planters*, and ſuch as delight themſelves in thoſe innocent *Ruſticities*. I will only, by way of *Corollary*, hint ſome Particulars for Satisfaction of the *Curious*; and eſpecially that we may in ſome ſort gratifie thoſe earneſt *Suggeſtions* and *Queries* of the late moſt obliging * Publiſher of the *Philoſophical Tranſactions*, to whoſe *indefatigable Pains* the learned World has been infinitely engaged. In Compliance therefore to his *Queries*, Monday *October* 19. 1668. *Number* xl. *p.* 797, 801, *&c.* theſe *Generals* are ſubmitted: That in ſuch *Trials*, as my *Friend* eſſay'd, he has not yet encounter'd with any *Sap* but what is very clear and ſweet, eſpecially that of the *Sycomore*, which has a *Dulcoration* as if mixed with *Sugar*, and that it runs one of the earlieſt: That the *Maple* diſtilled when quite

* Mr. *Oldenburg.*

reſcinded from the Body, and even whilſt he yet held it in his Hand: That the *Sycomore* ran at the *Root*, which ſome Days before yielded no *Sap* from his *Branches*; the *Experiment* made at the End of *March*: But the accurate Knowledge of the Nature of *Sap*, and its *Periodic* Motions and Properties in ſeveral *Trees*, ſhould be obſerved by ſome at entire Leiſure to attend it daily, and almoſt continually, and will require more than any *one* Perſon's Induſtry can afford; for it muſt be enquired concerning every *Tree*, its *Age*, *Soil*, *Situation*, *&c.* the Variety of its aſcending *Sap* depending on it; and then of its *Sap* aſcending in the *Branches* and *Roots*; deſcending in cut *Branches*; aſcending from *Root*, and not from *Branches*; the *Seaſons* and Difference of Time in which thoſe *Accidents* happen, *&c.* He likewiſe thinks the beſt Expedient to procure Store of *Liquor*, is to cut the *Trees* almoſt quite through all the *Circles*, on both Sides the *Pith*, leaving only the outmoſt *Circle*, and the *Barks* on the *North* or *North-eaſt* Side unpierced; and this *Hole*, the larger it is bored, the more plentifully 'twill diſtil; which if it be *under*, and *through* a large *Arm*, near the Ground, it is effected with greateſt Advantage, and will need neither *Stone*, nor *Chip* to keep it open, nor *Spigot* to direct it to the *Recipient*. Thus it will, in a ſhort Time, afford *Liquor* ſufficient to *Brew* with; and in ſome of theſe ſweet *Saps*, *one Buſhel* of *Malt* will afford as good *Ale* as *four* in ordinary *Waters*, even in *March* it ſelf; in others, as good as *two* Buſhels; for *this*, preferring the *Sycomore* before any other: But to preſerve it in beſt Condition for *Brewing*, till you are ſtored with a ſufficient Quantity, it is adviſed, that what firſt runs, be *inſolated* and placed in the *Sun*, till the Remainder be prepared, to prevent its growing Soure: But it may alſo be *fermented* alone, by ſuch as have the *Secret*: To the *Curious* theſe *Eſſays* are recommended: That it be immediately ſtopp'd up in the *Bottles* in which it is gathered, the *Corks* well *waxed* and expoſed to the *Sun*, till (as was ſaid) ſufficient Quantity be run; then let ſo much *Rye-bread* (toaſted very dry, but not burnt) be put into it, as will ſerve to ſet it a *working*; and when it begins to *ferment*, take it out, and *bottle* it immediately. If you add a few *Cloves*, &c. to ſteep in it, 'twill certainly keep the Year about: 'Tis a Wonder how ſpeedily it extracts the *Taſte* and *Tincture* of the *Spice*. Mr. *Boyle* propoſes a *ſulphureous* Fume to the *Bottles*: *Spirit* of *Wine* may haply not only preſerve, but advance the Virtues of *Saps*; and *Infuſions* of *Raſins* are obvious, and without Decoction *beſt*, which does but ſpend the more delicate Parts. *Note*, That the *Sap* of the *Birch* will make excellent *Mead*.

5. To theſe Obſervations, that of the *Weight* and *Virtue* of the ſeveral *Juices*, would be both uſeful and curious: As whether that which proceeds from the *Bark*, or between that and the *Wood* be of the ſame Nature with that which is ſuppoſed to ſpring from the *Pores* of the woody *Circles*? And whether it riſe in like Quantity, upon comparing the *Inciſures*? All which may be tried, firſt attempting through the *Bark*, and ſaving that apart, and then *perforating* into the *Wood*, to the Thickneſs of the *Bark*, or more; with a like Separation of what diſtils. The Period alſo of its *Current* would be *calculated*; as how much proceeds from the *Bark* in one *Hour*, how much from the *Wood* or Body of the *Tree*, and thus every *Hour*, with ſtill a deeper *Inciſion*, with a good large *Auger*, till the *Tree* be quite perforated: Then by making a *ſecond Hole* within the *firſt*, fitted with a leſſer Pipe, the interior

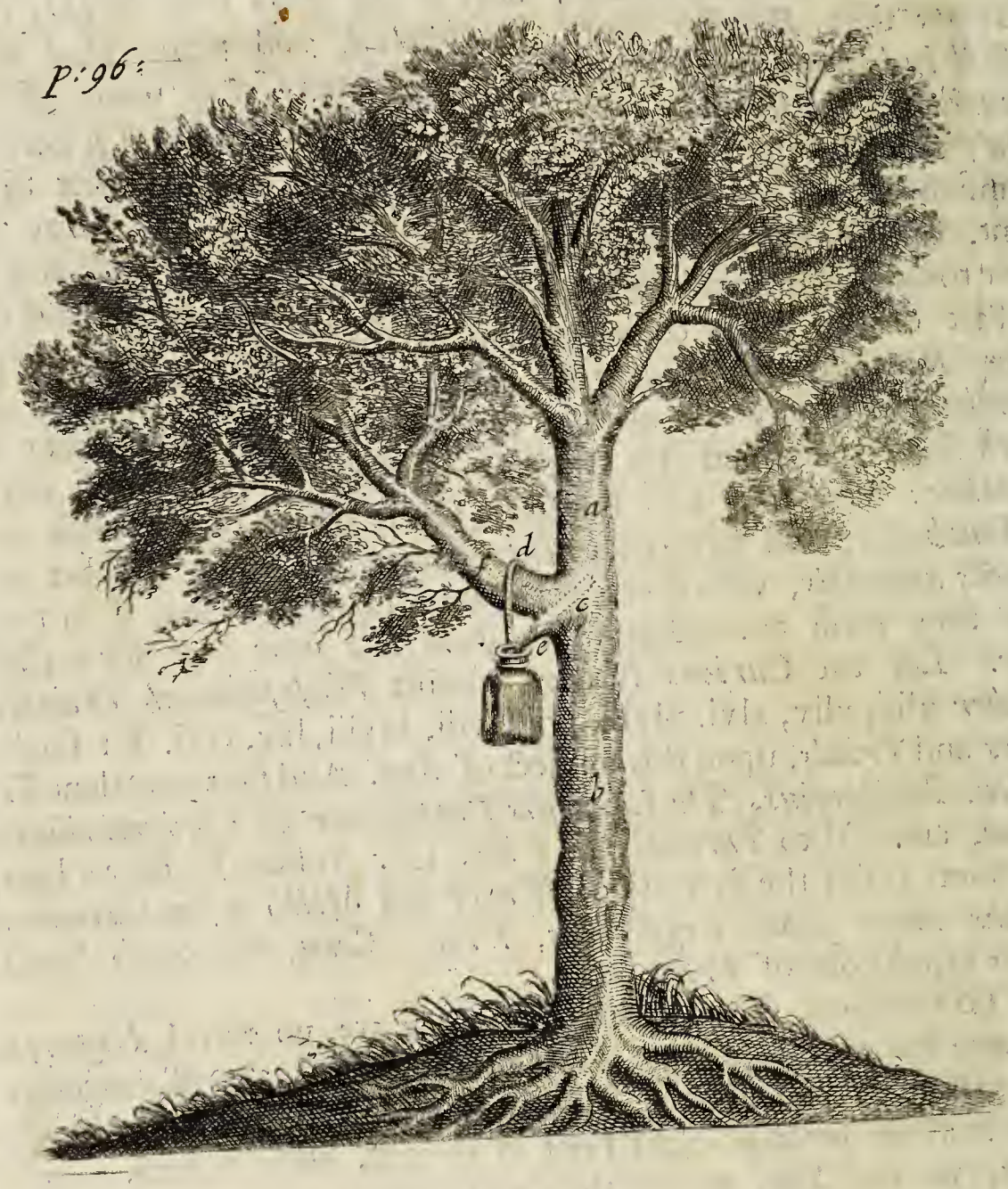
interior *Heart-ſap* may be drawn apart, and examined by *Weight*, *Quantity*, *Colour*, *Diſtillation*, &c. and if no Difference perceptible be detected, the Preſumption will be greater, that the Difference of *Heart* and *Sap* in *Timber*, is not from the *Sap*'s Plenty or Penury, but the *Seaſon*; and then poſſibly, the very *Seaſon* of *ſquaring*, as well as *felling* of *Timber*, may be conſiderable to the Preſervation of it.

6. The Notice likewiſe of the *Sap*'s riſing more plentifully and conſtantly in the *Sun* than *Shade*, more in the *Day* than *Night*, more in the *Roots* than *Branch*, more *Southward*, and when *that* and the *Weſt Wind* blows, than *Northward*, *&c.* may yield many uſeful *Obſervations:* As for *Planting*, to ſet thicker or thinner (*ſi cætera ſint paria*) namely, the Nature of the Tree, Soil, *&c.* and not to ſhade overmuch the *Roots* of thoſe *Trees* whoſe *Stems* we deſire ſhould mount, *&c.* That in *tranſplanting* Trees we turn the beſt and largeſt *Roots* towards the *South*, and conſequently the moſt ample and ſpreading Part of the *Head* correſpondent to the *Roots:* For if there be a ſtrong *Root* on that *Quarter*, and but a feeble Attraction in the *Branches*, this may not always counterpoiſe the weak *Roots* on the *North-ſide*, damnified by the too puiſſant Attraction of our large *Branches:* This may alſo ſuggeſt a Cauſe why *Trees* flouriſh more on the *South-ſide*, and have their *Integument* and *Coats* thicker on thoſe *Aſpects annually*, with divers other uſeful *Speculations*, if in the mean Time they ſeem not rather to be *puntillos* over nice for a plain *Foreſter*. Let the *Curious* further conſult *Philoſophical Tranſactions*, *Number* xliii, xliv, xlvi, xlviii, lvii, lviii, lxviii, lxx, lxxi. for farther *Inſtances* and *Trials*, upon this Subject of *Sap*. And that excellent *Treatiſe* of *Hen. Meibomius*, *De Cerviſiis Potibuſque & Ebriaminibus extra Vinum*, annex'd to *Turnebus de Vino*, *&c.* Where he ſhews how, and by whom (after the firſt Uſe of *Water* and *Milk*) were *introduced the Drinks made from Vegetables*, *Vines*, *Corn*, and other *Fruits* and *Juices* tapp'd out of *Trees*, &c.

7. To ſhew our *Reader* yet, that theſe are no novel *Experiments*, we are to know, that a large Tract of the World, almoſt altogether ſubſiſts on theſe *Treen* Liquors; eſpecially that of the *Date*, which being grown to about ſeven or eight Foot in Height, they wound, as we have taught, for the *Sap*, which they call *Toddy*, a very famous *Drink* in the *Eaſt-Indies*. This *Tree* increaſing every Year about a Foot, near the oppoſite Part of the firſt *Inciſure*, they pierce again, changing the *Receiver*; and ſo ſtill, by oppoſite Wounds and Notches, they yearly draw forth the *Liquor*, till it arrive to near *thirty* Foot upward, and of theſe they have ample *Groves* and *Plantations*, which they ſet at ſeven or eight Foot Diſtance: But then they uſe to *percolate* what they extract, through a *Stratum* made of the *Rind* of the *Tree*, well *contuſed* and beaten, before which Preparation, it is not ſafe to drink it; and 'tis obſerved that ſome *Trees* afford a much more generous *Wine* than others of the ſame Kind. In the *Cocoa* and *Palmeto* Trees, they chop a Bough, as we do the *Betula*; but in the *Date*, make the *Inciſion* with a *Chiſel* in the Body very neatly, in which they ſtick a *Leaf* of the *Tree*, as a *Lingula* to direct it into the appendant *Veſſel*, which the ſubjoined *Figure* repreſents, and illuſtrates with its Improvement to our former Diſcourſe.

Note,

BOOK I. Note, *If there be no fitting* Arms, *the* Hole *thus obliquely* perforated, *and a* Faucet *or* Pipe *made of a* Swan's *or* Goose's Quill *inserted, will lead the* Sap *into the* Recipient; *and this is a very neat Way, and as effectual: I would also have it tried, whether the very* top Twigs, *grasped in the Hand together, a little cropt with a Knife, and put into the Mouth of a* Bottle, *would not instil, if not as much, yet a more* refined *Liquor, as some pretend.*



(a. b.) *The* Body *of the* Tree (g.) *bor'd at that Part of the* Arm (f.) *joyn'd to the* Stem, *with an Auger of an* Inch *or more* Diameter, *according to the Bigness of the* Tree. (c.) *A Part of the* Bark, *or, if you will, a* Faucet *of* Quill *bent down into the Mouth of the* Bottle (e.) *to conduct the* Liquor *into it.* (d.) *The* String *about the* Arm (f.) *by which the* Bottle *hangs.*

8. The *Liquor* of the *Birch* is esteemed to have all the Virtues of the *Spirit of Salt*, without the Danger of its *Acrimony*; most powerful for the dissolving of the *Stone* in the *Bladder*, *bloody Water* and *Strangury*: *Helmont* shews how to make a *Beer* of the *Water*; but the *Wine* is a most rich *Cordial*, curing (as I am told) *Consumptions*, and such interior Diseases as accompany the *Stone* in the *Bladder* or *Reins*: The Juice decocted with *Honey* and *Wine*, Dr. *Needham* affirms he has often cured the *Scorbut* with. This *Wine*, exquisitely made, is so strong, that the common Sort of Stone-Bottles cannot preserve the *Spirits*,

De Lithiasi, c. viii. n. 24, 25, &c.

Spirits, ſo ſubtile they are and volatile; and yet it is gentle, and very harmleſs in Operation within the *Body*, and exceedingly ſharpens the *Appetite*, being drunk *ante paſtum*: I will preſent you a *Receipt*, as it was ſent me by a fair *Lady*, and have often, and ſtill uſe it.

9. To every *Gallon* of *Birch-water* put a Quart of *Honey*, well ſtirred together; then boil it almoſt an Hour with a few *Cloves*, and a little *Lemon-peel*, keeping it well ſcummed: When it is ſufficiently boiled, and become cold, add to it three or four Spoonfuls of good *Ale* to make it work (which it will do like new *Ale*) and when the *Yeſt* begins to ſettle, bottle it up as you do other *winy* Liquors. It will in a competent Time become a moſt brisk and ſpirituous *Drink*, which (beſides the former Virtues) is a very powerful *Opener*, and doing Wonders for cure of the *Phthyſick*: This *Wine* may (if you pleaſe) be made as ſucceſsfully with *Sugar*, inſtead of *Honey* lbj. to each *Gallon* of *Water*; or you may dulcifie it with *Raiſins*, and compoſe a *Raiſin-wine* of it. I know not whether the Quantity of the ſweet *Ingredients* might not be ſomewhat reduced, and the *Operation* improved: But I give it as received. The Author of the *Vinetum Brit.* boils it but to a *quarter* or *half* an Hour, then ſetting it a cooling, adds a very little *Yeſt* to *ferment* and purge it; and ſo *barrels* it with a ſmall Proportion of *Cinamon* and *Mace* bruiſed, about half an *Ounce* of both to ten *Gallons*, cloſe ſtopped, and to be *bottled* a Month after. Care muſt be taken to ſet the Bottles in a very *cool* Place, to preſerve them from flying; and the Wine is rather for preſent drinking, than of long Duration, unleſs the *Refrigeratory* be extraordinarily cold. The very *Smell* of the firſt ſpringing Leaves of this Tree, wonderfully recreates and exhilerates the Spirits.

10. But beſides theſe, *Beech*, *Alder*, *Aſh*, *Sycomor*, *Elder*, &c. would be attempted for *Liquors*: Thus *Crabs*, and even our very *Brambles* may poſſibly yield us *Medical* and uſeful *Wines*. The *Poplar* was heretofore eſteemed more *Phyſical* than the *Betula*. The Sap of the *Oak*, Juice or Decoction of the inner Bark, cures the *Faſhions*, or *Farcy*, a *virulent* and dangerous Infirmity in *Horſes*, and which (like *Cancers*) were reputed incurable by any other *Topic*, than ſome actual, or potential *Cautery*: But, what is more noble, a dear Friend of mine aſſured me, that a Country *Neighbour* of his (at leaſt *fourſcore* Years of Age) who had lain ſick of a bloody *Strangury* (which by cruel Torments reduced him to the very *Article* of Death) was, under *God*, recovered to perfect, and almoſt *miraculous* Health and Strength (ſo as to be able to fall ſtoutly to his Labour) by *one ſole Draught* of *Beer*, wherein was the *Decoction* of the internal Bark of the *Oak-tree*; and I have ſeen a *Compoſition* of an admirable *Sudorific* and *Diuretic* for all Affections of the *Liver*, out of the like of the *Elm*, which might yet be drunk daily, as our *Coffee* is, and with no leſs Delight: But *Quacking* is not my *Trade*; I ſpeak only here as a plain *Husbandman*, and a ſimple *Foreſter*, out of the Limits whereof I hope I have not unpardonably tranſgreſſed: *Pan* was a *Phyſician*, and *he* (you know) was *Preſident* of the *Woods*. But I proceed to the *Alder*.

CHAP. XVIII.

Of the Alder.

ALDER. 1. *Alnus*, the *Alder* (both *Conifera* and *Jülifera*) is of all other the moſt faithful Lover of *watery* and *boggy* Places, and thoſe moſt deſpiſed weeping Parts, or *Water-galls* of *Foreſts* ; —— *craſsíſque paludibus Alni* ; for in better and drier Ground they attract the Moiſture from it, and injure it. They are propagated of *Trunchions*, and will come of *Seeds* (for ſo they raiſe them in *Flanders*, and make wonderful Profit of the *Plantations*) like the *Poplar* ; or of *Roots* (which I prefer) the *Trunchions* being ſet as big as the Small of one's Leg, and in Length about two Foot ; whereof *one* would be plunged in the *Mud*. This profound fixing of *Aquatick-trees* being to preſerve them *ſteddy*, and from the *Concuſſions* of the *Winds*, and Violence of *Waters*, in their *liquid* and ſlippery Foundations. They may be placed at four or five Foot Diſtance, and when they have ſtruck *Root*, you may *cut* them, which will cauſe them to ſpring in *Clumps*, and to ſhoot out into many uſeful *Poles*. But if you plant ſmaller *Sets*, cut them not till they are arrived to ſome competent Bigneſs, and that in a proper *Seaſon*; which is, for all the *Aquaticks* and ſoft Woods, not till Winter be well advanced, in Regard of their *Pithy* Subſtance. Therefore, ſuch as you ſhall have Occaſion to make uſe of before that Period, ought to be well grown, and *felled* with the *earlieſt*, and in the firſt *Quarter* of the increaſing *Moon*, that ſo the ſucceſſive *Shoot* receive no Prejudice: Some, before they fell, disbark their *Alders*, and other Trees ; of which ſee *Chap.* iii. *Book* iii. But there is yet another Way of planting *Alders* after the *Jerſey* Manner, and as I received it from a moſt ingenious *Gentleman* of that Country, which is, by taking *Trunchions* of two or three Foot long, at the Beginning of Winter, and to bind them in *Faggots*, and place the Ends of them in *Water* 'till towards the Spring, by which Seaſon they will have contracted a ſwelling *Spire*, or *Knur*, about that Part, which being ſet, does (like the *Gennet-moil* Apple-tree) never fail of growing and ſtriking Root. There is a *black* Sort more affected to *Woods*, and drier Grounds; and bears a black *Berry*, not ſo frequently found ; yet growing ſomewhere about *Hampſted*, as the learned Dr. *Tancred Robinſon* obſerves.

2. There are a Sort of *Husbands* who take exceſſive Pains in *ſtubbing* up their *Alders*, where-ever they meet them in the *boggy* Places of their Grounds, with the ſame Indignation as one would extirpate the moſt pernicious of *Weeds* ; and when they have finiſhed, know not how to convert their beſt *Lands* to more Profit than this (ſeeming deſpicable) *Plant* might lead them *to*, were it rightly underſtood. Beſides, the *Shadow* of this *Tree* does feed and nouriſh the very *Graſs* which grows under it; and being ſet, and well plaſhed, is an excellent Defence to the Banks of *Rivers* ; ſo as I wonder it is not more practiſed about the *Thames*, to fortifie and prevent the mouldring of the *Walls*, and the violent *Weather* they are expoſed to.

3. You

3. You may cut *Aquatic-Trees* every third or fourth Year, and ſome more frequently, as I ſhall ſhew you hereafter. They ſhould alſo be abated within half a Foot of the principal *Head*, to prevent the periſhing of the main *Stock*; and beſides, to *accelerate* their Sprouting. In ſetting the *Trunchions*, it were not amiſs to prepare them a little after they are fitted to the Size, by laying them a while in *Water*; this is alſo practicable in *Willows*, &c. C. XVIII.

4. Of old they made *Boats* of the greater Parts of this Tree, and excepting *Noah*'s *Ark*, the firſt *Veſſels* we read of were made of this *Material*. USES.

[a] *When hollow* Alders *firſt the Waters try'd,*

[b] *And down the rapid* Po *light* Alders *glide.*

And as *then*, ſo *now*, are over-grown *Alders* frequently ſought after, for ſuch *Buildings* as lie continually under *Water*, where it will harden like a very *Stone*; whereas being kept in any unconſtant Temper, it *rots* immediately, becauſe its natural *Humidity* is of ſo near Affinity with its adventious, as *Scaliger* aſſigns the Cauſe. *Vitruvius* tells us, that the *Moraſſes* about *Ravenna* in *Italy*, were *piled* with this *Timber*, to *ſuperſtruct* upon, and highly commends it. I find alſo they uſed it under that famous *Bridge* at *Venice*, the *Rialto*, which paſſes over the *Grand-Canal*, bearing a vaſt Weight. *Joſ. Bauhimus* pretends, that in Tract of Time it turns to *Stone*; which perhaps it may ſeem to be (as well as other *Aquatick*) where it meets with ſome *lapideſcant* Quality in the *Earth* and *Water*.

5. The Poles of *Alder* are as uſeful as thoſe of *Willows*; but the *Coals* far exceed them, eſpecially for *Gun-powder*: The *Wood* is likewiſe uſeful for *Piles*, *Pumps*, *Hop-poles*, *Water-pipes*, *Troughs*, *Sluices*, ſmall *Trays* and *Trenchers*, *Wooden-heels*; the *Bark* is precious to *Dyers* and ſome *Tanners*, and *Leather-dreſſers* make uſe of it; and with *it*, and the *Fruits* (inſtead of *Galls*) they compoſe an *Ink*. The freſh *Leaves* alone applied to the naked *Soal* of the *Foot*, infinitely refreſh the ſurbated *Traveller*. The *Bark* macerated in *Water*, with a little *Ruſt* of *Iron*, makes a *black Dye*, which may alſo be uſed for *Ink*: The interior *Rind* of the *black Alder* purges all *hydropic* and *ſerous* Humours; but it muſt be dry'd in the Shade, and not uſed green, and the *Decoction* ſuffered to ſettle two or three Days, before it be drunk. USES.

Being beaten with *Vinegar*, it heals the *Itch* certainly: As to other *Uſes* the ſwelling *Bunches*, which are now and then found in the old Trees, afford the *Inlayer* Pieces curiouſly *chambletted*, and very hard, &c. but the *Faggots* better for the *Fire*, than for the *draining* of Grounds by placing them (as the Guiſe is) in the *Trenches*; which old Rubbiſh of *Flints*, *Stones*, and the like groſs Materials, does infinitely exceed, becauſe it is for ever, preſerves the *Drains* hollow, and being a little

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[a] Tunc alnos primùm fluvii ſenſêre cavatas. *Georg.* i.

[b] Nec non & torrentem undam levis innatat alnus
Miſſa Pado *Georg.* ii.

moulded

BOOK I. moulded over, will produce good *Graſs*, without any Detriment to the Ground; but this is a *Secret* not yet well underſtood, and would merit an expreſs *Paragraph*, were it here ſeaſonable.

——— *& jam nos inter opacas*
Muſa vocat Salices ———

CHAP. XIX.

Of the Withy, Sallow, Ozier and Willow.

WITHY. 1. *SALIX:* Since *Cato* has attributed the *third Place* to the *Salictum*, preferring it even next to the very *Ortyard*; and (what one would wonder at) before even the *Olive*, *Meadow* or *Corn-field* it ſelf (for *Salictum tertio loco, nemque poſt vineam, &c.*) and that we find it ſo eaſily rais'd of ſo great, and univerſal *Uſe*, I have thought good to be the more particular in my Diſcourſe upon it; eſpecially, ſince ſo much of that which I ſhall publiſh concerning them, is derived from the long *Experience* of a moſt Learned and Ingenious *Perſon*, from whom I acknowledge to have received many of theſe Hints. Not to perplex the *Reader* with the various Names, *Greek*, *Gallic*, *Sabin*, *Amerine*, *Vitex*, *&c.* better diſtinguiſhed by their *Growth* and *Bark*; and by *Latin Authors* all comprehended under that of *Salices*: Our *Engliſh* Books reckon them promiſcuouſly *thus*; The *common white Willow*, the *black*, and the *hard Black*, the *Roſe* of *Cambridge*, the *black Withy*, the *round-long Sallow*; the *longeſt Sallow*, the *crack-Willow*, the *round-ear'd ſhining Willow*, the *leſſer broad-leav'd Willow*, *ſilver ſallow upright broad Willow*, *repent broad-leav'd*, the *Red ſtone*, the *leſſer Willow*, the *ſtrait-Dwarf*, the *yellow-Dwarf*, *the long-leav'd yellow Sallow*, the *Creeper*, the *black-low Willow*, the *Willow-bay*, and the *Ozier*. I begin with the *Withy*.

2. The *Withy* is a reaſonable large *Tree* (for ſome have been found ten Foot about) is fit to be planted on high Banks, and *Ditch*-ſides within reach of Water, and the weeping ſides of *Hills*; becauſe they extend their Roots deeper than either *Sallows* or *Willows*. For this Reaſon you ſhall plant them at ten or twenty Foot Diſtance; and though they grow the ſloweſt of all the *twiggy* Trees, yet do they recompence it with the larger *Crop*; the *Wood* being tough, and the *Twigs* fit to bind ſtrongly; the very *Peelings* of the Branches being uſeful to bind *Arbor*-poling, and in *Topiary*-works, *Vine-yards*, *Eſpalier-Fruit*, and the like: And we are told of ſome that grow twiſted into Ropes of an hundred and twenty Paces, ſerving inſtead of *Cables*. There are two principal Sorts of theſe *Withies*, the *hoary*, and the *red-Withy* (which is the *Greek*) tougheſt, and fitteſt to *bind*, whilſt the Twigs are flexible and tender.

3. *Sallows* grow much faſter, if they are planted within reach of *Water*, or in a very *mooriſh* Ground, or flat Plain; and where the Soil is (by reaſon of extraordinary Moiſture) unfit for *Arable* or *Meadow*; for in theſe Caſes, it is an extraordinary *Improvement*; in a Word, where *Birch* and *Alder* will thrive. Before you *plant* them, it is found beſt to turn the Ground with a *Spade*, eſpecially if you deſign them for a Flat. We have three Sorts of *Sallows* amongſt us (which

is *one* more than the *Antients* challenged, who name only the *Black* and *White*, which was their *Nitellina*) the *vulgar* round-leav'd, which proves beſt in drier Banks, and the *hopping Sallows*, which require a a moiſter Soil, growing with incredible Celerity: And a *third* Kind, of a different *Colour* from the other *two*, having the Twigs *reddiſh*, the Leaf not ſo long, and of a more dusky *Green*; more brittle whilſt it is growing in *Twigs*, and more tough when arriv'd to a competent Size: All of them uſeful for the *Thatcher*.

4. Of *theſe*, the *hopping Sallows* are in greateſt Eſteem, being of a clearer *terſe* Grain, and requiring a more *ſucculent* Soil; beſt planted a Foot deep, and a Foot and half above Ground (though ſome will allow but a Foot) for then every Branch will prove excellent for future *Settlings*. After *three* Years growth (being cropp'd the ſecond and third) the firſt Year's Increaſe will be betwixt *eight* and *twelve* Foot long generally; the *third* Year's Growth, ſtrong enough to make *Rakes* and *Pike-ſtaves*; and the *fourth*, for Mr. *Blithe*'s Trenching-*Plow*, and other like *Utenſils* of the *Husbandman*.

5. If ye plant them at full Height (as ſome do at four Years Growth, ſetting them five or ſix Foot Length, to avoid the Biting of *Cattle*) they will be leſs uſeful for ſtreight *Staves*, and for *Settlings*, and make leſs Speed in their Growth; yet this alſo is a conſiderable *Improvement*.

6. Theſe would require to be planted at leaſt five Foot diſtance (ſome ſet them as much more) and in the *Quincunx* order: If they affect the Soil, the *Leaf* will come large, half as broad as a Man's Hand, and of a more vivid *Green*, always larger the firſt Year than afterwards: Some plant them ſloping, and croſs-wiſe like a *Hedge*; but this impedes their wonderful Growth; and (though *Pliny* ſeems to commend it, teaching us how to *excorticate* ſome Places of each *Set*, for the ſooner Production of *Shoots*) it is but a deceitful *Fence*, neither fit to keep out *Swine* nor *Sheep*; and being ſet too near, inclining to one another, they ſoon deſtroy each other.

7. The worſt *Sallows* may be planted ſo near yet, as to be inſtead of *Stakes* in a *Hedge*, and then their Tops will ſupply their Dwarfiſhneſs; and, to prevent *Hedge-breakers*, many do thus plant them; becauſe they cannot eaſily be pull'd up, after once they have ſtruck *Root*.

8. If ſome be permitted to wear their *Tops* five or ſix Years, their *Palms* will be very ample, and yield the firſt and moſt plentiful Relief to *Bees*, even before our *Abricots* bloſſom. The *hopping Sallows* open, and yield their *Palms* before other *Sallows*; and when they are *blown* (which is about the *Exit* of *May*, or ſometimes *June*) the *Palms* (or ὁλεσικάρποι, *Frugiperdæ*, as *Homer* terms them for their extream Levity) are four Inches long, and full of a fine *lanuginous Cotton*. Of this Sort, there is a *Salix* near *Darking* in *Surrey*, in which the *Julus* bears a thick *cottonous* Subſtance: A poor Body might in an Hour's Space, gather a Pound or two of it, which reſembling the fineſt *Silk*, might doubtleſs be converted to ſome profitable Uſe by an ingenious *Houſewife*, if gathered in calm *Evenings*, before the *Wind*, *Rain* and *Dew* impair them: I am of Opinion, if it were dry'd with Care, it might be fit for *Cuſhions*, and *Pillows* of *Chaſtity*, for ſuch of Old was the Reputation of the *Shade* of thoſe *Trees*.

9. Of theſe *hopping Sallows*, after three Years Rooting, each Plant will yield about a Score of *Staves*, of full eight Foot in Length, and ſo following, for Uſe, as we noted above: Compute then how many

Book I. fair *Pike-ſtaves*, *Perches*, and other uſeful *Materials*, that will amount to in an *Acre*, if planted at five Foot Interval : But a fat and moiſt Soil requires indeed more Space than a lean or drier, namely, *ſix* or *eight* Foot Diſtance.

10. You may plant *Settlings* of the very firſt Year's Growth; but the *ſecond* Year they are better, and the *third* Year, better than the *ſecond*; and the *fourth*, as good as the *third*, eſpecially if they approach the *Water*. A Bank at a Foot Diſtance from the *Water*, is kinder for them than a *Bog*, or to be altogether *immers'd* in the *Water*.

11. 'Tis good to new *mould* them about the *Roots* every ſecond, or third Year; but *Men* ſeldom take the Pains. It ſeems that *Sallows* are more hardy than even *Willows* and *Oziers*, of which *Columella* takes as much Care as of *Vines* themſelves. But it is cheaper to ſupply the *Vacuity* of ſuch accidental Decays, by a new *Plantation*, than to be at the Charge of *digging* about them three times a Year, as that *Author* adviſes; ſeeing ſome of them will decay, whatever Care be uſed.

12. *Sallows* may alſo be propagated like *Vines*, by *courbing* and bowing them in *Arches*, and covering ſome of their Parts with Mould, *&c.* Alſo by *Cuttings* and *Layers*, and ſome Years by the *Seeds* likewiſe.

13. For *Settlings*, thoſe are to be preferred which grow neareſt to the *Stock*, and ſo (conſequently) thoſe *worſt*, which moſt approach the *Top*. They ſhould be planted in the firſt fair and pleaſant Weather in *February*, before they begin to *bud*; we about *London* begin at the latter end of *December*. They may be cut in *Spring* for *Fuel*, but beſt in *Autumn* for *Uſe*; but in this Work (as of *Poplar*) leave a *Twig* or two; which being twiſted *Arch-wiſe*, will produce plentiful *Sprouts*, and ſuddenly furniſh a *Head*.

14. If in our *Copſes* one in four were a *Sallow* Set, amongſt the reſt of Varieties, the Profit would recompence the Care; therefore where in *Woods* you grub up Trees, thruſt in *Trunchions* of *Sallows*, or ſome *Aquatic* Kind. In a Word, an *Acre* or two furniſhed with this Tree, would prove of great Benefit to the *Planter*.

15. The ſwift growing *Sallow* is not ſo tough and hardy for ſome
Uses. *Uſes* as the *ſlower*, which makes *Stocks* for Gardeners *Spades*; but the other are proper for *Rakes*, *Pikes*, *Mops*, *&c.* Sallow-*Coal* is the ſooneſt conſum'd, but of all others, the moſt eaſy and accommodate for *Painters Scribbets*, to deſign their *Work*, and firſt *Sketches* on *Paper* with, *&c.* as being fine, and apt to ſlit into *Pencils*.

16. To conclude; There is a Way of *graffing* a *Sallow*-Trunchion; take it of two Foot and half long, as big as your *Wriſt*; graff at both Ends a *Fig* and *Mulberry*-Cyon of a Foot long, and ſo, without *claying*, ſet the *Stock* ſo far into the Ground, as the *Plant* may be three or four Inches above the Earth: This (ſome affirm) will thrive exceedingly the *firſt* Year, and in *three* be fit to *tranſplant*. The Seaſon for this Curioſity is *February*. Of the *Sallow* (as of the *Lime-tree*) is made the *Shoe-maker*'s Carving or *Cutting-board*, as beſt to preſerve the *Edge* of their *Knives*, for its equal Softneſs every Way.

Ozier. 17. *Oziers*, or the *Aquatick* and leſſer *Salix*, are of innumerable Kinds, commonly diſtinguiſhed from *Sallows*, as *Sallows* are from *Withies*; being ſo much ſmaller than the *Sallows*, and ſhorter *liv'd*, and requiring more conſtant *Moiſture*, yet would be planted in rather a *dry-*
Uses. *iſh* Ground, than over *moiſt* and ſpewing, which we frequently cut Trenches

to

to avert. It likewiſe yields more limber and flexible *Twigs* for *Baſkets*, *Flaskets*, *Hampers*, *Cages*, *Lattices*, *Cradles*, the *Bodies* of *Coaches* and *Waggons*, for which it is excellent Uſe, light, durable, and neat, as it may be wrought and covered: For *Chairs*, *Hurdles*, *Stays*, *Bands*, the ſtronger for being contuſed and wreathed, *&c.* likewiſe for Fiſh-*Weirs*, and to ſupport the *Banks* of impetuous *Rivers*: In fine, for all *Wicker* and *Twiggy* Works;

Viminibus Salices ——

18. But theſe Sort of *Oziers* would be cut in the new *Shoot*; for if they ſtand longer, they become more inflexible: Cut them cloſe to the *Head* (a Foot or ſo above Earth) about the Beginning of *October*; unleſs you will attend till the *Cold* be paſt, which is better; and yet we about *London* cut them in the moſt piercing *Seaſons*, and plant them alſo till *Candlemas*, which thoſe who do not obſerve, we judge ill Husbands, as I learn from a very experienced *Basket-maker*; and in the Decreaſe, for the Benefit of the *Workman*, though not altogether for *that* of the *Stock*, and ſucceeding *Shoot*. When they are *cut*, make them up into *Bundles*, and give them Shelter; but ſuch as are for *White-work* (as they call it) being thus *fagotted*, and made up in *Bolts*, as the Term is, ſevering each Sort by themſelves, ſhould be ſet in *Water*, the Ends dipp'd; and indeed all peel'd Wares of the *viminious* Kind, are not otherwiſe preſerved from the Worm; but for *black* and *unpeel'd*, ſhelter'd under Covert only, or in ſome *Vault* or *Cellar*, to keep them freſh, ſprinkling them now and then in exceſſive hot Weather: The *Peelings* of the former are for the Uſe of the *Gardener* and *Cooper*, or rather the *Splicings*.

19. We have in *England* theſe three vulgar Sorts; *one* of little worth, being brittle, and very much reſembling the fore-mentioned *Sallow*, with reddiſh Twigs, and more greeniſh and rounder Leaves: *Another* Kind there is, call'd *Perch*, of limber and green Twigs, having a very ſlender Leaf: The *third* Sort is totally like the *ſecond*, only the Twigs are not altogether ſo *green*, but *yellowiſh*, and near the *Popinjay*: This is the very *beſt* for *Uſe*, tough and hardy. But the moſt uſual Names by which *Basket-makers* call them about *London*, and which are all of different *Species* (therefore to be planted ſeparately) are, the *Hard Gelſter*, the *Horſe Gelſter*, *Whining* or *ſhrivelled Gelſter*, the *Black Gelſter*, in which *Suffolk* abounds. Then follow the *Golſtones*, the *hard* and the *ſoft Golſtone* (brittle and worſt of all the *Golſtones*) the ſharp and ſlender top'd *yellow Golſtone*; the *fine Golſtone*: Then is there the *yellow Ozier*, the *green Ozier*, the *Snake*, or *ſpeckled Ozier*, *Swallow-tail*, and the *Spaniard*: To theſe we may add (amongſt the Number of *Oziers*, for they are both governed and uſed alike) the *Flanders Willow*, which will arrive to be a large *Tree*, as big as one's Middle, the oftner cut the better: With theſe our *Coopers* tie their *Hoops* to keep them bent. Laſtly, the *white Sallow*; which being of a Year or two Growth, is uſed for *Green-work*; and if of the tougheſt Sort, to make *Quarter Can-Hoops*, of which our *Seamen* provide great Quantities, *&c.*

20. Theſe choicer Sorts of *Oziers*, which are ever the *ſmalleſt*, alſo the *Golden yellow*, and *White*, which is preferred for Propagation, and to breed of, ſhould be planted of *Slips* of two or three Years Growth, a Foot deep, and half a Yard length, in *mooriſh* Grounds, or Banks, or elſe in *Furrows*; ſo that (as ſome direct) the *Roots* may frequently

reach the *Water*; for *Fluminibus Salices* —— though we commonly find it rots them, and therefore never chuſe to ſet them ſo deep as to ſcent it, and at three or four Foot Diſtance.

21. The Seaſon for planting is *January*, and all *February*, though ſome not till *Mid-February*, at two Foot Square; but *Cattle* being exceſſively liquoriſh of their *Leaves* and tender *Buds*, ſome talk of *graffing* them out of reach upon *Sallows*, and by *this* to advance their ſprouting; but as the *Work* would conſume Time, ſo have I never ſeen it ſucceed.

22. Some do alſo plant *Oziers* in their *Eights*, like *Quick-ſets*, thick, and (near the Water) keep them not more than half a Foot above Ground; but then they muſt be diligently cleanſed from *Moſs*, *Slab*, and *Ouze*, and frequently *pruned* (eſpecially the ſmaller Spires) to form ſingle Shoots, at leaſt that few or none grow double; theſe they *Head* every ſecond Year about *September*, the *autumnal* Cuttings being beſt for Uſe: But generally

23. You may cut *Withies*, *Sallows* and *Willows* at any mild and gentle *Seaſon*, between *Leaf* and *Leaf*, even in Winter; but the moſt congruous Time both to *plant* and to *cut* them, is *Creſcente Luna Vere*, *circa Calendas Martias*; that is, about the new *Moon*, and firſt open Weather of the early Spring.

24. It is in *France*, upon the *Loire*, where theſe *Eights* (as we term them) and Plantations of *Oziers* and *Withies* are perfectly underſtood; and both *there*, and in divers other Countries beyond Seas, they raiſe them of *Seeds* contain'd in their *Juli*, or *Catkins*, which they ſow in *Furrows*, or ſhallow *Trenches*, and it ſprings up like *Corn* in the *Blade*, and comes to be ſo tender and delicate, that they frequently mow them with a *Scyth*: This we have attempted in *England* too, even in the Place where I live; but the obſtinate and unmerciful *Weeds* did ſo confound them, that it was impoſſible to keep them clean with any ordinary Induſtry, and ſo they were given over: It ſeems, either Weeds grow not ſo faſt in other Countries, or that the *People* (which I rather think) are more patient and laborious.

Note, That theſe *Juli* are not all of them *Seed-bearers*, ſome are *ſterile*, and whatever you raiſe of them will never come to *bear*; and therefore by ſome they are called the *Male* Sort, as Mr. *Ray* (that learned *Botaniſt*) has obſerved. The *Ozier* is of that Emolument, that in ſome Places I have heard *twenty Pounds* has been given for one *Acre*; Ten is in this Part an uſual Price; and doubtleſs it is far preferable to the beſt *Corn-land*, not only for that it needs but *once Planting*, but becauſe it yields a conſtant *Crop* and Revenue to the World's End; and is therefore in Eſteem of knowing Perſons, valued in *Purchaſe* accordingly; conſider'd likewiſe how eaſily it is renewed, when a Plant now and then fails, by but pricking in a *Twig* of the next at Hand, when you viſit to cut them. We have in the *Pariſh* near *Greenwich*, where I lately dwelt, improved Land from leſs than one Pound, to near ten Pounds the *Acre*: And when we ſhall reflect upon the infinite Quantities of them we yearly bring out of *France* and *Flanders*, to ſupply the extraordinary Expence of *Basket-work*, *&c.* for the *Fruiterers*, *Lime-burners*, *Gardeners*, *Coopers*, *Packers-up* of all Sorts of *Ware*, and for general *Carriage*, which ſeldom laſt above a Journey or two, I greatly admire *Gentlemen* do no more think of employing their *moiſt Grounds* (eſpecially where *Tides* near freſh *Rivers* are reciprocal) in

planting

planting and propagating *Oziers*, To omit nothing of the *Culture* of this uſeful *Ozier*, *Pliny* would have the Place to be prepared by *trenching* it a Foot and half deep, and in *that*, to fix the *Sets*, or *Cuttings*, of the ſame Length at ſix Foot interval. Theſe (if the *Sets* be large) will come immediately to be *Trees*; which after the firſt three Years, are to be abated within two Foot of the Ground. Then in *April* he adviſes to dig about them: Some raiſe them abundantly, by laying Poles of them in a boggy Earth only: Of theſe they formerly made *Vine-props*, *Juga*, as *Pliny* calls them, for archwiſe bending and yoaking, as it were, the Branches to one another; and one *Acre* hath been known to yield *Props* ſufficient to ſerve a *Vineyard* of twenty-five *Acres*. CH. XIX.

25. *John Tradeſcant* brought a ſmall *Ozier* from *St. Omers* in *Flanders*, which makes incomparable *Net-works*, not much inferior to the *Indian* Twig, or *Bent-works*, which we have ſeen; but if we had them in greater abundance, we ſhould haply want the *Artificers* who could employ them, and the Dexterity to *verniſh* ſo neatly.

26. Our common *Salix*, or *Willow*, is of *two* Kinds, the *White* and the *Black*: The *White* is alſo of two Sorts, the *one* of a *yellowiſh*, the the other of a *browner* Bark: The *black Willow* is planted of *Stakes*, of three Years Growth, taken from the Head of an old *Tree*, before it begins to ſprout: Set them of ſix Foot high, and ten diſtant; as directed for the *Poplar*. Thoſe woody Sorts of *Willow*, delight in *Meads* and *Ditch-ſides*, rather *dry* than over *wet* (for they love not to wet their Feet, and laſt the longer) yet the *black* Sort, and the *reddiſh*, do ſometimes well in more *boggy* Grounds, and would be planted of *Stakes* as big as one's *Leg*, cut as the other, at the Length of five or ſix Foot or more into the Earth; the *Hole* made with an *oaken Stake* and Beetle, or with an *Iron Crow* (ſome uſe a long *Auger*) ſo as not to be forced *in* with too great Violence: But firſt the *Trunchions* ſhould be a little ſloped at both Extreams, and the biggeſt planted downwards: To this, if they are *ſoaked* in *Water* two or three Days (after they have been ſized for *Length*, and the Twigs cut off e'er you plant them) it will be the better. Let this be done in *February*, the *Mould* as well cloſed to them as poſſible, and treated as was taught in the *Poplar*. If you plant for a Kind of *Wood*, or *Copſe* (for ſuch I have ſeen) ſet them at ſix Foot Diſtance, or nearer, in the *Quincunx*, and be careful to take away all *Suckers* from them at three Years End: You may abate the *Head* half a Foot from the *Trunk*, *viz.* three or four of the luſtieſt *Shoots*, and the reſt cut cloſe, and *bare* them yearly, that the *three*, *four* or more you left may enjoy all the *Sap*, and ſo thoſe which were ſpared, will be gallant *Pearches* within *two* Years. Arms of four Years Growth will yield ſubſtantial *Sets*, to be planted at eight or ten Foot Diſtance; and for the firſt three Years well defended from the *Cattle*, who infinitely delight in their *Leaves*, green or withered. Thus a *Willow* may continue *twenty* or *five* and *twenty Years*, with good *Profit* to the induſtrious *Planter*, being *headed* every four or five Years; ſome have been known to *ſhoot* no leſs than *twelve Foot* in *one Year*, after which, the old rotten *Dotards* may be *felled*, and eaſily ſupplied. But if you have Ground fit for whole *Copſes* of this *Wood*, caſt it into double *Dikes*, making every *Foſs* near three Foot wide, two and half in Depth; then leaving four Foot at leaſt of Ground for the Earth (becauſe in ſuch *Plan-*

WILLOW.

Book I. *tations* the Moiſture ſhould be below the *Roots*, that they may rather ſee than feel the Water) and two *Tables* of *Sets* on each Side, plant the *Ridges* of theſe *Banks* with but *one* ſingle *Table*, longer and bigger than the *collateral*, *viz.* three, four, five or ſix Foot high, and diſtant from each other about two Yards. Theſe *Banks* being carefully kept *weeded* for the firſt two Years, till the *Plants* have vanquiſhed the *Graſs*, and not cut till the *third*; you may then lop them *traverſe*, and not obliquely, at one Foot from the Ground, or ſomewhat more, and they will *head* to Admiration; but ſuch which are cut at three Foot height, are moſt durable, as leaſt ſoft and *aquatick*: They may alſo be *graffed* betwixt the *Bark*, or *budded*; and then they become ſo beautiful, as to be fit for ſome Kind of delightful *Walks*; and this I wiſh were practiſed among ſuch as are ſeated in low and marſhy Places, not ſo friendly to other *Trees*. Every *Acre*, at eleven or twelve Years Growth, may yield you near a hundred Load of Wood: Cut them in the Spring for dreſſing, but in the *Fall* for *Timber* and *Fuel*. I have been informed, that a *Gentleman* in *Eſſex* has lopp'd no leſs than two thouſand *yearly*, all of his own planting. It is far the ſweeteſt of all our *Engliſh Fuel* (*Aſh* not excepted) provided it be ſound and dry, and emitting little *Smoak*, is the fitteſt for *Ladies* Chambers; and all thoſe *Woods* and *Twigs* would be cut either to *plant*, *work* with, or *burn* in the drieſt Time of the Day.

To confirm what we have advanced in Relation to the Profit which may be made by this Husbandry, ſee what comes to me from a worthy Perſon whom we ſhall have occaſion to mention, with great Reſpect, in the next *Chapter*, when we ſpeak of *Quick-ſets*.

The conſiderable Improvement which may be made in *common Fields* as well as *incloſed Grounds*, he demonſtrates by a little Spot of *Meadow*, of about a *Rod* and *half*; part of which being planted, about fifty Years ſince, with *Willows* (in a *Clump* not exceeding four *Pole* in Length, on one Side about twelve) ſeveral of them at the firſt and ſecond lopping, being left with a ſtrait Top, run up like *Elms*, to thirty or forty Foot in Height; which ſome Years ſince yielded *Boards* of fourteen or fifteen Inches broad, as good for *Flooring* and other Purpoſes within Doors, as *Deals*, laſt as long, work finer, white and beautiful: 'Tis indeed a good while ſince they were planted, but it ſeems the Crop anſwered his Patience, when he cut up as many of them (the Year 1700) as were well worth ten Pounds; and ſince that another *Tree*, for which a *Joyner* offered him as much for thoſe were left, which was more by half than the whole Ground it ſelf was worth; ſo as having made twenty Pounds of the Spot, he ſtill poſſeſſes it without much Damage to the *Graſs*. The Method of *planting* was firſt by making *Holes* with an *Iron Crow*, and widening them with a *Stake* of Wood, fit to receive a luſty *Plant*, and ſometimes boaring the Ground with an *Auger*; but neither of theſe ſucceeding (by reaſon the Earth could not be rammed ſo cloſe to the Sides and Bottom of the Sets, as was requiſite to keep them ſteady, and ſeclude the *Air*, which would corrupt and kill the *Roots*) he cauſed *Holes*, or little *Pits*, of a Foot ſquare and depth to be dug, and then making a Hole with the *Crow* in the Bottom of the Pits, to receive the *Set*, and breaking the *Turf* which came out of it, rammed it in with the Mould cloſe to the *Sets* (as they would do to fix a Gate-poſt) with great Care not to gall the *Bark* of it. He had divers Times before this miſcarried, when he uſed formerly to ſet them

them in plain Ground, without breaking the Surface, and laying it close to the *Sets*; and therefore, if the Soil be moist, he digs a Trench by the Side of the Row, and applies the Mould which comes out of it about the Sets; so that the Edge of the *Bank*, raised by it, may be somewhat higher than the Earth next the Set, for the better Descent of the Rain, and Advantage of watering the Sets in dry Weather; preventing likewise their rooting in the *Bank*, which they would do if the Ground next the *Plant* or *Set* were made high, and sloped; and being left unfenced, Cattle would tread down the Bank, and lay the Roots bare: The Ground should therefore not be raised above two or three Inches towards the Body of the Set. Now if the Ground be dry, and want Moisture, he chuses to bank them round (as I have described in my *Pomona*, *Chap.* vii.) the *Fosses* environing the *Mound* and *Hillock*, being *Reserves* for the *Rain*, cools and refreshes the Sets.

He farther instances, That *Willows* of about twenty Years Growth, have been worth thirty Shillings, and another sold for three Pounds, which was well worth five Pounds; and affirms, that the *Willows* planted in *Beds*, between double *Ditches*, in boggy Ground, may be fit to be cut every five Years, and pay as well as the best *Meadow-Pasture*, which is of extraordinary Improvement.

27. There is a Sort of *Willow* of a slender and long Leaf, resembling the smaller *Ozier*; but rising to a Tree as big as the *Sallow*, full of *Knots*, and of a very brittle *Spray*, only here *rehearsed* to acknowledge the *Variety*.

28. There is likewise the *Garden-Willow*, which produces a sweet and beautiful *Flower*, fit to be admitted into our *Hortulan* Ornaments, and may be set for *Partitions* of *Squares*; but they have no Affinity with other. There is also in *Shropshire* another very *odoriferous* Kind, extreamly fit to be planted by pleasant *Rivulets*, both for Ornament and Profit: It is propagated by *Cuttings* or *Layers*, and will grow in any dry Bottom, so it be sheltered from the *South*, affording a wonderful and early Relief to the industrious *Bee*. *Vitruvius* commends the *Vitex* of the *Latines* (impertinently called *Agnus Castus*, the *one* being but the *Interpretation* of the *other*) as fit for building; I suppose they had a Sort of better Stature than the *Shrub* growing among the *Curious* with us, and which is celebrated for its *chaste* Effects, and for which the Antients employed it in the *Rites* of *Ceres*: I rather think it more convenient for the *Sculptor* (which he likewise mentions) provided we may, with safety, restore the *Text*, as *Perrault* has attempted, by substituting *Lævitatem* for the Author's *Regiditatem*, stubborn Materials being not so fit for that curious Art.

29. What most of the former enumerated Kinds differ from the *Sallows*, is indeed not much considerable, they being generally useful for the same Purposes; as *Boxes*, such as *Apothecaries* and *Goldsmiths* use; for *Cart-saddle-trees*, yea *Gun-stocks* and *Half-pikes*, *Harrows*, *Shoe-makers Lasts*, *Heels*, *Clogs* for *Pattens*, *Forks*, *Rakes*, especially the *Tooths*, which should be wedged with *Oak*; but let them not be cut for this when the *Sap* is stirring, because they will shrink; *Pearches*, *Rafters* for *Hovels*, portable and light *Laders*, *Hop-poles*, *Ricing* of *Kidney-beans*, and for *Supporters* to *Vines*, when our *English Vineyards* come more in Request: Also for *Hurdles*, *Sives*, *Lattices*; for the *Turner*, *Kyele-pins*, great *Town-Tops*; for *Platters*, little *Casks* and *Vessels*, especially to preserve *Verjuices* in, the

Uses.

Book I. beſt of any: *Pales* are alſo made of cleft *Willow*, *Dorſers*, *Fruit-baskets*, *Cans*, *Hives* for *Bees*, *Trenchers*, *Trays*, and for poliſhing and whetting *Table-Knives*, the *Butler* will find it above any Wood or *Whet-ſtone*; alſo for *Coals*, *Bavin*, and excellent *Firing*, not forgetting the freſh *Boughs*, which, of all the Trees in Nature, yield the moſt chaſte and cooleſt *Shade* in the hotteſt Seaſon of the Day; and this Umbrage ſo wholeſome, that *Phyſicians* preſcribe it to *feaveriſh* Perſons, permitting them to be placed even about their *Beds*, as a ſafe and comfortable *Refrigerium*. The Wood being preſerved dry, will dure a very long Time; but that which is found wholly *putrified*, and reduced to a loamy Earth in the hollow Trunks of *ſuperannuated* Trees, is, of all other, the fitteſt to be mingled with fine *Mould*, for the raiſing our choiceſt *Flowers*, ſuch as *Anemonies*, *Ranunculus's*, *Auriculas*, and the like.

[a] *What would we more? Low* Broom, *and* Sallows *wild*,
Or feed the Flock, or Shepherds Shade, *or* Field
Hedges about, or do us Honey yield.

30. Now by all theſe Plantations of the *Aquatick* Trees, it is evident, the *Lords* of *mooriſh Commons*, and unprofitable *Waſtes*, may learn ſome *Improvement*, and the neighbour *Bees* be gratified, and many Tools of *Husbandry* become much cheaper. I conclude with the learned *Stephanus*'s Note upon theſe Kind of *Trees*, after he has enumerated the univerſal Benefit of the *Salictum*: *Nullius enim tutior reditus, minoriſve impendii, aut tempeſtatis ſecurior.*

CHAP. XX.

Of Fences, Quick-ſets, &c.

Fences. 1. OUR main *Plantation* is now finiſhed, and our *Foreſt* adorned with a juſt *Variety*: But what is yet all this Labour, but loſs of *Time*, and irreparable *Expence*, unleſs our *young* and (as yet) tender *Plants* be ſufficiently *guarded* with *Munitions* from all external *Injuries*? For, as old *Tuſſer*,

If Cattle or Coney may enter to Crop,
Young Oak is in danger of loſing his Top.

But with ſomething a more poliſhed *Stile*, though to the ſame Purpoſe, the beſt of Poets,

[b] *Plaſh Fences thy Plantation round about,*
And whilſt yet young, be ſure keep Cattle out;
Severeſt Winters, ſcorching Sun infeſt,
And Sheep, Goats, Bullocks, all young Plants moleſt;

---

[a] Quid majora ſequor? Salices, humileſque geniſtæ,
Aut illæ pecori frondem, aut paſtoribus umbram
Sufficiunt, ſepemque ſatis & pabula melli. *Georg.* ii.

[b] Texendæ ſepes etiam, & pecus omne tenendum eſt:
Præcipuè, dum frons tenera, imprudenſque laborum,
Cui, ſuper indignas hyemes, ſolemque potentem,
Silveſtres Uri aſſiduè, capreæque ſequaces

Let

Yet neither Cold, nor the hoar rigid Froſt,
Nor Heat reflecting from the Rocky Coaſt,
Like Cattle Trees, and tender Shoots confound,
When with invenom'd Teeth the Twigs they wound.

2. For, the *Reaſon* that ſo many complain of the improſperous Condition of their *Wood-Lands* and *Plantations* of this Kind, proceeds from this *Neglect*; though (*Sheep* excepted) there is no Employment whatſoever incident to the *Farmer*, which requires leſs *Expence* to gratifie their Expectations: One diligent and skilful *Man* will govern *five hundred* Acres: But if through any Accident a *Beaſt* ſhall break into his *Maſter*'s Field; or the wicked *Hunter* make a Gap for his *Dogs* and *Horſes*, what a Clamour is there made for the Diſturbance of a Year's *Crop* at moſt in a little *Corn!* Whilſt abandoning his young *Woods* all this Time, and perhaps many Years, to the venomous Bitings and Treading of *Cattle*, and other like Injuries (for want of due Care) the Detriment is many Times *irreparable*; young *Trees* once cropp'd, hardly ever *recovering:* It is the *Bane* of all our moſt hopeful *Timber*.

3. But ſhall I provoke you by an *Inſtance?* A *Kinſman* of mine has a *Wood* of more than ſixty *Years* ſtanding; it was before he purchaſed it, expoſed and abandoned to the *Cattle* for divers Years: Some of the outward Skirts were nothing, ſave *Shrubs* and miſerable *Starvlings*; yet ſtill the Place was diſpoſed to grow *woody*; but by this Neglect, continually ſuppreſſed. The induſtrious *Gentleman* has *fenced* in ſome *Acres* of this, and cut all cloſe to the Ground; it is come in eight or nine Years, to be better worth than the *Wood* of *ſixty*; and will (in Time) prove moſt incomparable *Timber*, whilſt the other Part (ſo many Years advanced) ſhall never recover; and all *this* from no other *Cauſe*, than preſerving it *fenced*. Judge then by *this*, how our *Woods* come to be ſo decried: Are five hundred *Sheep* worthy the Care of a *Shepherd?* and are not *five thouſand* Oaks worth the *fencing*, and the Inſpection of a *Hayward?*

[a] *And ſhall Men doubt to plant, and careful be?*

Let us therefore *ſhut* up what we have thus laborioufly *planted*, with ſome good *Quick-ſet Hedge*; Which,

[b] ——————*all Countries bear, in every Ground*
As Denizen, or Interloper found:

Illudunt: Paſcuntur Oves, avidæque juvencæ.
Frigora nec tantum cana concreta pruina,
Aut gravis incumbens ſcopulis arentibus æſtas,
Quantum illi nocuere greges, durique venenum
Dentis, & admorſo ſignata in ſtirpe cicatrix. *Georg.* ii.

[a] Et dubitant homines ſerere, atque impendere curam? *Georg.* ii.

[b] ——————omne ſolum natale eſt, intrat ubique
Ardelio; illa quidem cultis excluditur agris
Plerumque, atque hortis; ſed circumſepit utroſqu
Atque omnes aditus ſervat fidiſſima cuſtos,
Utilior latrante Cane, armatoque Priapo.
Aſpera frigoribus ſaxiſque Helvetia tales
Educat, & peregre terras emittit in omnes
Enormes duroſque viros, ſed fortia bello
Pectora; non illi cultu, non moribus Aulas,
Atque Urbes decorare valent, ſed utraſque fideli
Defendunt opera; nec iis, gens cauta, Tyranni,
Præponunt ſpecioſa magis, multúmque ſonora
Præſidia; his certi vitam tutantur opeſque, *&c.* COULEII, pl. l. vi.

From

From Gardens and till'd Fields expell'd, yet there,
On the Extreams *ſtands up, and claims a Share.*
Nor Maſtiff-Dog, *nor* Pike-Man *can be found*
A better Fence to the encloſed Ground.
Such Breed the rough and hardy Cantons *rear,*
And into all adjacent Lands prefer,
Though rugged Churls, and for the Battle fit;
Who Courts and States with Compliment or Wit,
To civilize, nor to inſtruct pretend;
But with ſtout faithful Service to defend.
This Tyrants *know full well, nor more confide*
On Guards *that ſerve leſs for Defence than Pride:*
Their Perſons ſafe, they do not judge amiſs,
And Realms *committed to their* Guard *of* Swiſs.

Quick-Sets. For ſo the ingenious *Poet* has metamorphoſed him, and I could not withſtand him.

4. The *Haw-thorn* (*Oxyacantha vulgaris*) and indeed the very beſt of common *Hedges*, is either rais'd of *Seeds* or *Plants*; but then it muſt not be with *Deſpair*, becauſe ſometimes you do not ſee them peep the *firſt* Year; for the *Haw*, and many other *Seeds*, being inveſted with a very hard *Integument*, will now and then ſuffer *Impriſonment* two whole Years under the Earth; and our Impatience at this, does often fruſtrate the *Reſurrection* of divers *Seeds* of this Nature; ſo that we frequently *dig* up, and diſturb the *Beds* where they have been *ſown*, in *Deſpair*, before they have *gone* their *full Time*; which is alſo the Reaſon of a very *popular* Miſtake in other *Seeds*; eſpecially, that of the *Holly*, concerning which there goes a *Tradition*, that they will not ſprout till they be paſs'd through the *Maw* of a *Thruſh*; whence the ſaying, *Turdus exitium ſuum cacat* (alluding to the *Viſcus* made thereof, not the *Miſſelto* of *Oak*) but this is an *Error*, as I am able to teſtifie on *Experience*; they come up very well of the *Berries*, treated as I have ſhewed in *Chap.* xxvi. and with *Patience*; for (as I affirmed) they will *ſleep* ſometimes *two* entire Years in their *Graves*; as will alſo the Seeds of *Yew*, *Sloes*, *Phillyrea anguſtifolia*, and ſundry *others*, whoſe *Shells* are very *hard* about the ſmall *Kernels*; but which is wonderfully facilitated, by being (as we directed) prepared in *Beds*, and *Magazines* of *Earth*, or *Sand* for a competent Time, and then committed to the Ground before the *Full* in *March*, by which *Seaſon* they will be *chitting*, and ſpeedily take *Root*: Others bury them deep in the Ground all *Winter*, and ſow them in *February*: And thus I have been told of a *Gentleman* who has conſiderably improved his *Revenue*, by ſowing *Haws* only, and raiſing *Nurſeries* of *Quick-ſets*, which he ſells by the *Hundred* far and near: This is a commendable *Induſtry*; any neglected Corners of Ground will fit this *Plantation*. Or were ſuch Places plowed in Furrow about the Ground you would fence, and ſowed with the *Mark* of the *Cyder*-Preſs, *Crab*-Kernels, *&c.* kept ſecure from *Cattle* 'till able to defend it ſelf; it would yield excellent *Stocks* to graff and tranſplant: And thus any larger Plot, by plowing and croſs-plowing the Ground, and ſowing it with all Sorts of Foreſt-Seeds; breaking and harrowing the Clods, and cleanſing it from Weeds with the *Haugh* (till the *Plants* over-top them)

them) a very profitable *Grove* may be raiſed, and yield *Magazine* of ſingular Advantage, to furniſh the induſtrious *Planter*.

5. But *Columella* has another Expedient for the raiſing of our *Spinetum*, by rubbing the now mature *Hips* and *Haws*, *Aſhen-Keys*, &c. into the Crevices of *Baſs-ropes*, or Wiſps of *Straw*, and then burying them in a *Trench*: Whether Way you attempt it, they muſt (ſo ſoon as they peep, and as long as they require it) be ſedulouſly cleanſed of the *Weeds*; which, if in Beds for *Tranſplantation*, had need be at the leaſt three or four Years; by which Time even your *Seedlings* will be of *Stature* fit to *remove*; for I do by no Means approve of the vulgar *præmature* planting of *Sets*, as is generally uſed throughout *England*; which is to take ſuch only as are the very *ſmalleſt*, and ſo to crowd them into three or four *Files*, which are both egregious *Miſtakes*.

6. Whereas it is found by conſtant Experience, that Plants as big as ones *Thumb*, ſet in the Poſture, and at the Diſtance which we ſpake of in the *Horn-beam*; that is, almoſt *perpendicular* (not altogether, becauſe the *Rain* ſhould not get in betwixt the *Rind* and *Wood*) and ſingle, or at moſt, not exceeding a double *Row*, do proſper infinitely, and much out-ſtrip the denſeſt and cloſeſt Ranges of our trifling *Sets*, which make but weak *Shoots*, and whoſe *Roots* do but hinder each other, and for being couch'd in that *Poſture*, on the Sides of *Banks*, and *Fences* (eſpecially where the Earth is not very tenacious) are *bared* of the *Mould* which ſhould entertain them, by that Time the *Rains* and *Storms* of one *Winter* have paſſed over them. In *Holland* and *Flanders* (where they have the goodlieſt *Hedges* of this Kind about the *Counterſcarps* of their invincible *Fortifications*, to the great Security of their *Musketeers* upon occaſion) they plant them according to my Deſcription, and raiſe *Fences* ſo ſpeedily, and ſo impenetrable, that our *beſt* are not to enter into the Compariſon. Yet, that I may not be wanting to direct ſuch as either affect the other Way, or whoſe *Grounds* may require ſome *Bank* of *Earth*, as ordinarily the Verges of *Copſes*, and other Incloſures do; you ſhall by *Line*, caſt up your *Foſs* of about three Foot broad, and about the ſame depth, provided your Mould hold it; beginning firſt to turn the *Turf*, upon which be careful to lay ſome of the beſt *Earth* to bed your *Quick* in, and there *lay* or *ſet* the *Plants*; *two* in a Foot ſpace is ſufficient; being diligent to procure ſuch as are *freſh* gathered, *ſtreight*, *ſmooth*, and well *rooted*; adding now and then, at equal Spaces of twenty or thirty Foot, a young *Oakling* or *Elm*-Sucker, *Aſh*, or the like, which will come in Time (eſpecially in plain Countries) to be ornamental *Standards*, and good *Timber*: If you will needs multiply your Rows, a *Foot* or ſomewhat leſs: Above that, upon more congeſted Mould, plant another Rank of *Sets*, ſo as to point juſt in the middle of the *Vacuities* of the *firſt*, which I conceive enough: This is but for the ſingle *Foſs*; but if you would fortifie it to the Purpoſe, do as much on the other Side, of the ſame *Depth*, *Height*, and *Planting*; and then, laſt of all, cap the Top in *Pyramis* with the worſt, or bottom of the *Ditch*: Some, if the *Mould* be good, plant a Row or two on the Edge, or very *Creſt* of the *Mound*, which ought to be a little flatned. Here alſo may they ſet their *dry Hedges*, for *Hedges* muſt be *hedged* till they are able to defend and ſhade their under Plantation, and I cannot reprove it: But great Care is to be had in this *Work*, that the main Bank be well *footed*, and not made with too ſudden a Declivity, which is ſubject to fall in

Book I. after *Froſts* and *wet* Weather; and this is good Husbandry for *moiſt* Grounds; but where the Land lies *high*, and is hot and *gravelly*, I prefer the lower fencing; which, though *even* with the *Area* it ſelf, may be protected with *Stakes* and a dry Hedge, on the *Foſs* Side, the Diſtance competent, and to very good Purpoſes of educating more frequent *Timber* amongſt the Rows.

7. Your *Hedge* being yet *young*, ſhould be conſtantly *weeded* two or three Years, eſpecially before *Midſummer* (of *Brambles* eſpecially the great *Dock* and *Thiſtle*, &c.) though ſome admit not of this Work till after *Michaelmas*, for *Reaſons* that I approve not: It has been the Practice of *Herefordſhire*, in the Plantation of *Quick-ſet-hedges*, to plant a *Crab-ſtock* at every twenty Foot Diſtance; and this they obſerve ſo *religiouſly*, as if they had been under ſome rigorous Statute requiring it: But by this Means they were provided in a ſhort Time with all Advantages for the *graffing* of *Fruit* amongſt them, which does highly recompence their Induſtry. Some cut their *Sets* at *three* Years Growth even to the very Ground, and find that in a *Year* or *two*, it will have ſhot as much as in *ſeven*, had it been let alone.

8. When your *Hedge* is now of near ſix Years Stature, *plaſh* it about *February* or *October*; but this is the Work of a very dextrous and skilful *Husbandman*; and for which our honeſt Country-man Mr. *Markham* gives excellent Directions; only I approve not ſo well of his *deep* Cutting, if it be poſſible to bend it, having ſuffered in ſomething of that Kind: It is almoſt incredible to what Perfection ſome have laid theſe *Hedges*, by the *rural* Way of *plaſhing*, better than by *clipping*; yet may both be uſed for *Ornament*, as where they are planted about our *Garden-fences*, and *Fields* near the *Manſion*. In *Scotland*, by tying the young *Shoots* with *Bands* of *Hay*, they make the *Stems* grow ſo very cloſe together, as that it encloſeth *Rabbets* in *Warrens* inſtead of *Pales*: And for this robuſt Uſe we ſhall prefer the *Black-thorn*; the extravagant *Suckers* which are apt to riſe at Diſtance from the *Hedge-line*, being ſedulouſly extirpated, that the reſt may grow the ſtronger and thicker.

9. And now ſince I did mention it, and that moſt I find do greatly affect the vulgar Way of *Quicking* (that this our *Diſcourſe* be in nothing deficient) we will in Brief give it you again after *George Markham*'s Deſcription, becauſe it is the beſt, and moſt accurate, although much reſembling our former *Direction*, of which it ſeems but a *Repetition*, 'till he comes to the *Plaſhing*. In a Ground which is more *dry* than *wet* (for *watry* Places it abhors) plant your *Quick* thus: Let the firſt Row of *Sets* be placed in a *Trench* of about half a Foot deep, even with the Top of your *Ditch*, in ſomewhat a ſloping, or inclining Poſture; then having raiſed your *Bank* near a Foot upon them, plant another *Row*, ſo as their Tops may juſt peep out over the middle of the *Spaces* of your *firſt* Row: Theſe covered again to the Height or Thickneſs of the other, place a third *Rank* oppoſite to the *firſt*, and then finiſh your Bank to its intended Height. The Diſtances of the *Plants* would not be above one *Foot*; and the *Seaſon* to do the Work in, may be from the Entry of *February*, till the End of *March*; or elſe in *September* to the Beginning of *December*. When this is finiſhed, you muſt guard both the Top of your *Bank*, and outmoſt Verge of your *Ditch*, with a ſufficient *dry Hedge*, intervowen from *Stake* to *Stake* into the Earth (which commonly they do on the Bank) to ſecure your

Quick

Quick from the Spoil of *Cattle*. And then being careful to repair ſuch as decay, or do not ſpring, by ſupplying the dead, and trimming the reſt; you ſhall, after three Years Growth, ſprinkle ſome *Timber-trees* amongſt them; ſuch as *Oak*, *Beech*, *Aſh*, *Maple*, *Fruit*, or the like; which being drawn young out of your *Nurſeries*, may be very eaſily inſerted.

I am not in the mean Time ignorant of what is ſaid againſt the ſcattering theſe *Maſts* and *Keys* among our Fences; which grown, over-top the *ſubnaſcent* Hedge, may prejudice it with their *Shade* and *Drip*: But this might be prevented by planting *Hollies* (Proof againſt theſe Impediments) in the Line or Trench where you would raiſe *Standards*, as far as they uſually ſpread in many Years, and which, if placed at good Diſtances, how cloſe ſoever to the *Stem*, would (beſides their ſtout Defence) prove a wondrous Decoration to large and ample Incloſures. But to reſume our former Work; that which we affirmed to require the greateſt Dexterity, is the artificial *plaſhing* of our *Hedge*, when it is now arrived to a *ſix* or *ſeven* Years Head; though ſome ſtay till the tenth, or longer. In *February* therefore, or *October*, with a very ſharp *Hand-bill*, cut away all ſuperfluous *Sprays* and *Stragglers*, which may hinder your Progreſs, and are uſeleſs. Then, ſearching out the principal *Stems*, with a keen and light *Hatchet*, cut them *ſlant-wiſe* cloſe to the *Ground*, hardly three Quarters through, or rather, ſo far only, as till you can make them comply handſomely, which is your beſt Direction (leſt you rift the *Stem*) and ſo lay it from your *ſloping* as you go, folding in the leſſer *Branches* which ſpring from them; and ever within a five or ſix Foot Diſtance, where you find an upright *Set* (cutting *off* only the Top to the Height of your intended *Hedge*) let it ſtand as a *Stake*, to fortifie your Work, and to receive the *Twinings* of thoſe Branches about it. Laſtly, at the *Top* (which would be about *five Foot* above Ground) take the longeſt, moſt ſlender, and flexible *Twigs* which you reſerved, and (being cut as the former, where need requires) bind *in* the Extremities of all the reſt; and thus your Work is finiſhed. This being done very cloſe and thick, makes an impregnable *Hedge*, in few Years; for it may be repeated as you ſee occaſion; and what you ſo cut away, will help to make your *dry Hedges* for your young *Plantations*, or be profitable for the *Oven*, and make good *Bavin*; namely, the extravagant ſide Branches ſpringing the more *upright*, 'till the newly wounded are healed. There are ſome yet who would have no *Stakes* cut from the Trees, ſave here and there one; ſo as to leave half the Head naked, and the other ſtanding; ſince the over-hanging Bows will kill what is under them, and ruin the Tree; ſo pernicious is this half-topping: But let this be a total *Amputation* for a new and luſty Spring. There is nothing more prejudicial to *ſubnaſcent* young *Trees*, than when newly trimmed and pruned, to have their (as yet raw) Wounds poiſoned with continual dripping; as is well obſerved by Mr. *Nourſe*: But this is meant of repairing decayed *Hedges*. For *Stakes* in this Work, *Oak* is to be preferred, though ſome will uſe *Elder*, but it is not good, or the *Black-thorn*, *Crab-Tree*; in mooriſh Ground *Withy*, *Aſh*, *Maple*, *Haſel*, not laſting, (which ſome make *Hedges* of, but it being apt to the browſing of *Cattle*, when the young Shoots appeared, it does better in *Copſes*) the reſt not laſting, ſhould yet be driven well *in* at every Yard of Interval both before and after they are bound, till they have taken the hard Earth, and are very faſt;

and even your *plaſhed Hedges* need ſome ſmall *Thorns* to be laid over, to protect the Spring from *Cattle* and *Sheep*, 'till they are ſomewhat fortified; and the doubler the *Winding* is lodged, the better; which ſhould be beaten, and forced down together with the *Stakes*, as equally as may be. Note, that in ſloping your *Windings*, if it be too low done (as very uſually) it frequently mortifies the Tops; therefore it ought to be ſo bent, as it may not impede the mounting of the *Sap*: If the *Plaſh* be of a great and extraordinary *Age*, wind it at the neather Boughs all together, and cutting the *Sets*, as directed, permit it rather to hang downwards a little, than riſe too forwards; and then twiſt the Branches into the Work, leaving a *Set* free, and unconſtrained at every *Yard* Space, beſides ſuch as will ſerve for *Stakes*, abated to about *five Foot* Length (which is a competent Stature for an *Hedge*) and ſo let it ſtand. One ſhall often find in this Work, eſpecially in *old* neglected *Hedges*, ſome great *Trees* or *Stubs*, that commonly make *Gaps* for *Cattle*: Such ſhould be cut ſo near the Earth, as till you can lay them thwart, that the *Top* of one may reſt on the *Root* or *Stub* of the other, as far as they extend, ſtopping the *Cavities* with its Boughs and Branches; and thus *Hedges*, which ſeem to conſiſt but only of *ſcrubby Trees* and *Stumps*, may be reduced to a tolerable *Fence*: But in Caſe it be *ſuperannuated*, and very old, 'tis adviſable to ſtub all up, being quite renewed, and well guarded. We have been the longer on theſe *Deſcriptions*, becauſe it is of main Importance, and that ſo few *Huſbandmen* are ſo perfectly skilled in it: But he that would be more fully ſatisfied, I would have to conſult Mr. *Cook*, *Chap.* xxxii. or rather *Inſtar Omnium* (and after all which has been ſaid of this uſeful Art of *Fencing*) what I cannot without Injury to the Publick, and Ingratitude to the Perſons, who do me the Honour of imparting to me their Experiences, but as freely communicate.

It is then from the Reverend Mr. *Walker* of *Great-Billing* near *Northampton*, that (with ſeveral other Particulars relating to our *Rural* Subject) I likewiſe receive from that worthy Gentleman *Tho. Franklin* of *Ecton*, Eſq; the following *Method* of *Planting* and *Fencing* with *Quick-ſets*; which we give you in his own Words.

10. 'About ten or twelve Years ſince, I made ſome Eſſays to ſet 'ſome little *Clumps* of *Hedges* and *Trees*, of about two *Pole* in 'Breadth, and three in Length: The Out-fences ditch'd on the Out-'ſide, but tho *Quick-ſets* in the Inſide of the Bank, that the *dead* '*Hedges* might ſtand on the Outſide thereof; ſo that a ſmall Hedge of 'eighteen or twenty Inches high, made of ſmall *Wood*, the Stakes not 'much bigger than a Man's Thumb, which (the Banks being high) ſuf-'ficiently defended them for four Years time, and were hedged with 'leſs than one Load of Shreadings of *Willow-ſets*, which (as my 'Workmen told me) would have required ſix Load of *Copſe-wood*: 'But the next Year after their being planted, finding waſt Ground on 'the Top of the Bank of the outer Fence, between the *dead Hedge* and 'the *quick*, I put a *Foot-ſet* in the ſame Space between the *quick* and 'the *dead Hedge*, which proſpered better than thoſe planted in the 'Side of the Bank, after the vulgar Way, and hold it ſtill. This put 'me upon thinking, that a Set cheaper and better of *Quick-fence*, might 'poſſibly be found out; and accordingly I made ſome Trials, with good 'Succeſs (at leaſt better than the old Way) though not to my full Satiſ-'faction, till I had peruſed Mr. *Evelyn's Silva*, &c. The Method I

'uſed,

'uſed, was this: Firſt I ſet out the Ground for *Ditches* and *Quick*, 'in Breadth *ten Foot*; then ſubdivided *that*, by marking out two *Foot* 'and a half on each Side (more or leſs, at pleaſure) for the *Ditches*, 'leaving five in the middle between them: Then digging up two Foot 'in the midſt of that five Foot, plant the Sets in; though it require 'more Labour and Charge, I found it ſoon repaid the Coſt. This done, 'I began to dig the *Foſſes*, and to ſet up one Row of *Turfs* on the Out-'ſide of the ſaid five Foot; namely, one Row on each Side thereof, the 'green Side outmoſt, a little reclining, ſo as the *Graſs* might grow: 'After this, returning to the Place begun at, I ordered one of the Men 'to dig a Spit of the under Turf-Mould, and lay it between the *Turfs*, 'placed Edge-wiſe, as before deſcribed, upon the two Foot which was 'purpoſely *dug* in the Middle, and prepared for the Sets, which the '*Planter* ſets with two *Quicks* upon the Surface of the Earth, almoſt 'upright, whilſt another Workman lays the Mould forward, about 'twelve Inches, and then ſets two more, and ſo continues. Some there 'are who plant three Rows of Sets about eight Inches Interval; but I 'do not approve it; for they choak one another. This finiſhed, I order 'another Row of *Turfs* to be placed on each Side upon the Top of the 'former, and fill the Vacuity between the *Sets* and the *Turfs*, as high 'as their Tops, always leaving the Middle, where the Sets are planted, '*hollow*, and ſomewhat lower than the Sides of the Banks, by eight or 'ten Inches, that the *Rain* may deſcend to their Roots, which is of 'great Advantage to their Growth, and far better than by the old Way; 'where the *Banks* too much ſloping, the *Roots* of the Sets are ſeldom 'wetted in an ordinary Seaſon, the Summer following; but which if it 'prove dry, many of the Sets periſh, eſpecially the late planted: 'Whereas thoſe which I planted in the latter End of *April*, though 'the Summer happen'd to be ſomewhat dry, generally 'ſcaped, very few 'of them miſcarrying. Now the Planting thus advanced, the next 'Care is *Fencing*; by ſetting an *Hedge* of about twenty Inches high 'upon the Top of the Bank, on each Side thereof, leaning a little out-'ward from the *Sets*, which will protect them as well (if not better) 'than a Hedge of three Foot, or four Inches more, ſtanding upon the 'Surface of the Ground, which being raiſed with the *Turfs* and *Sods* 'about twenty Inches, and the *Hedge* about twenty Inches more, will 'make three Foot four Inches; ſo as no *Cattle* can approach the *dead* '*Hedge*, to prejudice it, unleſs they ſet their Feet in the Ditch it ſelf; 'which will be at leaſt a Foot deep, and from the Bottom of the *Foſſe* 'to the Top of the *Hedge*, about four Foot and half, which they can 'hardly reach over to crop the *Quick*, as they might in the old Way; 'and beſides, ſuch an *Hedge* will endure a Year longer. I have at this 'preſent an *Hedge* which has ſtood theſe five Years; and though nine 'or ten Foot be ſufficient for both *Ditches* and *Bank*, yet where the 'Ground is but indifferent, 'tis better Husbandry to take twelve Foot, 'which will allow of a Bank at leaſt ſix Foot broad, and gives more 'Scope to place the *dead Hedges* farther from the *Sets*; and the *Ditches* 'being ſhallow, will, in two Years time, *Graze*; though I confine my 'ſelf for the moſt Part to nine or ten; becauſe I would take off the only 'Objection of waſting Ground by this Way, ſhould others follow it. In 'Reply to this, I affirm, That if you take twelve Foot in Breadth, for '*Ditch* and *Bank*, you waſt more Ground than by the common Way: 'For in *that* a *Quick* is rarely ſet, but there is nine Foot between the

'*dead*

Book I.

'dead Hedges, which is entirely loſt all the Time of *Fencing*: When 'as with double *Ditches*, there remains at leaſt eighteen Inches on each 'Side where the Turfs were ſet on Edge, that bear more *Graſs* than 'when it lay on the Flat. But admitting it did totally lay waſt three 'Foot of Ground, the Damage were very inconſiderable, ſince *forty* '*Perch*, in Length two hundred and twenty *Yards*, which makes '*Perches*, 7, 25^{11}, 9^{1}, or 7 *Pole* $\frac{1}{4}$, which at thirteen *Shillings* and 'four *Pence* the *Acre*, amounts not to 7*d.* $\frac{1}{2}$ *per Ann.* Now that this 'is not only the beſt and cheapeſt Way of *Quick-ſetting*, will appear 'by comparing the Charge of both: In the uſual Way, the Charge of 'a three Foot *Ditch* is four *Pence* per *Pole*, the Owner providing *Sets*; 'if the Workman finds them, he will have for making the ſaid *Ditch*, 'and ſetting them, eight *Pence* the *Pole*, and for *Hedging* two *Pence*; 'that is, for both Sides four *Pence* the *Pole*, which renders the Charge 'of *Hedging*, *Ditching*, and *Sets*, twelve *Pence* the *Pole*; that is, 'for *forty Rod* in Length, *forty Shillings*: Then one Load of *Wood* 'out of the *Copſe* coſts us, with the Carriage (though but two or three 'Miles Diſtance) ten Shillings; which will ſeldom *Hedge* above eight '*Pole* (ſingle Hedge.) But allowing it to do *ten*, to fence forty *Pole*, 'there muſt be at leaſt eight Load of *Wood*, which coſts four *Pounds*, 'making the whole Expence for *Ditching*, *Setting*, and *Fencing* of 'forty *Pole*, to be ſix *Pounds*, reckoning with the leaſt; for I know 'not any that will undertake to do it under three Shillings and ſix Pence '*per Pole*, and then the forty *Pole* coſts ſeven *Pounds*. Whereas, 'with double *Ditches*, both of them, *Setting* and *Sets*, will be done 'for eight Pence *per Pole*, and the *Husbandman* get as good Wages, 'as with a ſingle Ditch (for though the Labour about them is more, yet 'the making the *Table* is ſaved) which coſts one Pound ſix Shillings and 'eight Pence. And the *Hedges* being but low, they'll make better Wa-'ges at Hedging for a *Penny* the *Pole*, than at *two Pence* for common 'Hedges; which comes to ſix Shillings and eight Pence for Hedging *for-'ty Pole* on both Sides: Thus one Load of *Wood* will fence thirty *Pole* 'at leaſt, and forty hedged with two thirds of Wood leſs than in the 'other Way, and coſt but one Pound ſix Shillings and eight Pence, 'which makes the whole Charge of *Sets*, *Ditching*, *Fencing* and '*Wood*, but *three Pounds*.

l.	*s.*	*d.*
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Hitherto this obliging and induſtrious Gentleman.

Uses.

11. To other Uſes: The *Root* of an old *Thorn* is excellent both for *Boxes* and *Combs*, and is curiouſly and naturally wrought: I have read, that they made *Ribs* to ſome ſmall *Boats* or *Veſſels* with the *White-Thorn*; and it is certain, that if they would plant them *ſingle*, and in *Standards*, where they might be ſafe, they would riſe into large bodied Trees in Time, and be of excellent Uſe for the *Turner*, not inferior to *Box*, and accounted among the *fortunate* Trees, and therefore uſed in *Faſces Nupſiarum*, ſince the jolly *Shepherds* carried the *White-Thorn* at the *Rapine* of the *Sabines*; and ever ſince counted * pro-pitious.

* See *Varro* in *Atiis Ovid. Faſt.* 6. — *deſpina ſumitur alba.*

The

The distilled *Water* and *Stone*, or *Kernels* of the *Haw* reduced to *Powder*, is generally agreed to be *soveraign* against the *Stone*. The *Black-Crab*, rightly seasoned and treated, is famous for *Walking-staves*, and if over-grown, used in *Mill-work*; yea, and for *Rafters* of great *Ships*. Here we owe due *Eulogy* to the Industry of the late Lord *Shaftsbury*, who has taught us to make such Inclosures of *Crab-Stocks* only (planted close to one another) as there is nothing more impregnable and becoming; or you may sow *Cyder-kernels* in a *Rill*, and fence it for a while with a double *dry Hedge*, not only for a sudden and beautiful, but a very profitable *Inclosure*; because, amongst other Benefits, they will yield you *Cyder-fruit* in abundance: But in *Devonshire*, they build two *Walls* with their *Stones*, setting them Edge-ways, *two*, and then *one* between; and so as it rises, fill the Interval, or *Cofer*, with Earth (the *Breadth* and *Height* as you please) and continuing the *Stone-work*, and *filling*, and, as you work, beating in the *Stones* flat to the Sides, they are made to stick everlastingly. This is absolutely the neatest, most saving, and profitable *Fencing* imaginable, where *slaty Stones* are in any abundance; and it becomes not only the most *secure* to the *Lands*, but the best for *Cattle*, to lie warm under the *Walls*; whilst other *Hedges* (be they never so thick) admit of some cold *Winds* in Winter-time when the Leaves are off. Upon these *Banks* they plant not only *Quick-sets*, but even *Timber-trees*, which exceedingly thrive, being out of all Danger. CH. XX.

12. The *Pyracantha Paliurus*, and like preciouser Sorts of *Thorn* and robust *Ever-greens*, adorned with *Caralin-Berries*, might easily be propagated by *Seeds*, *Layers* or *Cuttings*, into Plenty sufficient to store even these vulgar *Uses*, were *Men* industrious; and then, how beautiful and sweet would the *Environs* of our *Fields* be! for there are none of the *spinous Shrubs* more hardy, none that make a more glorious *Shew*, nor fitter for our Defence, competently armed, especially the *Rhamnus*, which I therefore joyn to the *Oxycantha*, for its terrible and almost irresistible *Spines*, able almost to pierce a Coat of *Mail*; and for this made use of by the malicious *Jews*, to crown the sacred Temples of our *Blessed Saviour*, and is yet preferred among the most venerable *Relicks* in St. *Chapel* at *Paris*, as is pretended by the *Devotees*, *&c.* and hence has the Tree (for it sometimes exceeds a *Shrub*) the Name of *Christ's Thorn*. Thus might *Barberies* now and then be also inserted among our *Hedges*, which, with the *Hips*, *Haws* and *Cornel-berries*, do well in *light Lands*, and would rather be planted to the *South*, than *North* or *West*, as usually we observe them.

13. Some (as we noted) mingle their very *Hedges* with *Oaklings*, *Ash*, and *Fruit-Trees*, sown or planted, and 'tis a laudable Improvement; though others do rather recommend to us *Sets* of all *one* Sort, and will not so much as admit of the *Black-Thorn* to be mingled with the *White*, because of their unequal Progress; and indeed, *Timber-trees* set in the *Hedge* (though *Contemporaries* with it) do frequently wear it out; and therefore I should rather encourage such *Plantations* to be at some *Yards* Distance, near the *Verges*, than *perpendicularly* in them. *Lastly*, if in planting any the most robust *Forest-Trees* (especially *Oak*, *Elm*, *Chesnut*) at competent Spaces, and in *Rows*, you open a *Ring* of Ground, at about four Foot Distance from the *Stem*, and prick in *Quick-set* Plants; you may after a while, keep them *clipped*, at what Height you please: They will appear exceedingly beautiful to

BOOK I. the Eye, prove a good Fence, and yield uſeful *Buſh*, *Bavin*, and (if you maintain them unſhorn) *Hips* and *Haws* in abundance: This would therefore eſpecially be practiſed, where one would invite the *Birds*.

14. In *Cornwal* they ſecure their *Lands* and *Woods* with high *Mounds*, and on them they plant *Acorns*, whoſe Roots bind in the looſer Mould, and ſo form a double and moſt durable *Fence*, incircling the *Fields* with a *Coronet* of *Trees*. They do likewiſe (and that with great Commendation) make *Hedges* of our *Geniſta ſpinoſa*, prickly *Furzes*, of which they have a *taller* Sort, ſuch as the *French* employ for the ſame Purpoſe in *Bretaigne*, where they are incomparable *Husbands*.

15. It is to be *ſown* (which is beſt) or *planted* of the *Roots* in a Furrow: If ſown, *weeded* till it be ſtrong; both *tonſile*, and to be diligently *clipped*, which will render it very thick, an excellent and beautiful *Hedge*: Otherwiſe, permitted to grow at large, 'twill yield very good *Faggot*: It is likewiſe admirable *Covert* for *Wild-fowl*, and will be made to grow even in moiſt as well as dry Places. The young and tender Tops of *Furzes*, being a little bruiſed, and given to a lean ſickly *Horſe*, will ſtrangely recover and plump him. Thus, in ſome Places, they *ſow* in *barren Grounds* (when they lay them down) the laſt *Crop* with this *Seed*, and ſo let them remain till they break them up again, and during that Interim, reap conſiderable Advantage: Would you believe (writes a worthy *Correſpondent* of mine) that in *Herefordſhire* (famous for Plenty of *Wood*) their *Thickets* of *Furzes* (*viz.* the *Vulgar*) ſhould yield them more *Profit* than a like Quantity of the beſt *Wheat-Land* of *England*? for ſuch is theirs. If this be queſtioned, the *Scene* is within a Mile of *Hereford*, and proved by *anniverſary* Experience, in the *Lands*, as I take it, of a *Gentleman* who is now one of the *Burgeſſes* for that *City*. And in *Devonſhire* (the *Seat* of the beſt *Husbands* in the *World*) they ſow on their worſt *Land* (*well plowed*) the *Seeds* of the rankeſt *Furzes*, which in four or five Years becomes a rich *Wood*: No Provender (as we ſay) makes *Horſes* ſo hardy as the young *Tops* of theſe *Furzes*; no other *Wood* ſo thick, nor more excellent *Fuel*; and for ſome Purpoſes alſo, yielding them a Kind of *Timber* to their more humble *Buildings*, and a great Refuge for *Fowl* and other *Game*. I am aſſured, in *Bretaigne* 'tis ſometimes ſown no leſs than *twelve Yards* thick, for a ſpeedy, profitable, and impenetrable *Mound*: If we imitated this *Husbandry* in the dry and hot barren Places of *Surrey*, and other Parts of this *Nation*, we might exceedingly ſpare our *Woods*; and I have bought the beſt Sort of *French-ſeed* at the Shops in *London*. It ſeems that in the more *Eaſtern* Parts of *Germany*, and eſpecially in *Poland*, this vulgar Trifle, and even our common *Broom* is ſo rare, that they have deſired the *Seeds* of them out of *England*, and preſerve them with extraordinary Care in their beſt *Gardens*: This I learn out of our *Johnſon*'s *Herbal*; by which we may conſider, that what is reputed a *Curſe*, and a Cumber in ſome Places, is eſteemed the Ornament and Bleſſing of another: But we ſhall not need go ſo far for this, ſince both *Beech* and *Birch* are almoſt as great Strangers in many Parts of this *Nation*, particularly *Northampton* and *Oxfordſhire*. Mr. *Cook* is much in Praiſe of *Juniper* for *Hedges*, eſpecially for the more elegant Incloſures; and we daily ſee how it's improved of late.

USES.

BROOM. 16. This puts me in mind of the *Geniſta ſcoparia*, *Broom*; another *Improvement* for *barren* Grounds, and Saver of more ſubſtantial *Fuel*:

It may be ſown *Engliſh*, or (what is more ſweet and beautiful) the *Spaniſh*, with equal Succeſs. In the *weſtern* Parts of *France* and *Cornwal*, it grows with us to an incredible Height (however our *Poet* gives it the *Epithet* of *humilis*) and ſo it ſeems they had it of old, as appears by *Gratius* his *Geniſtæ Altinates*, with which (as he affirms) they uſed to make *Staves* for their *Spears*, and hunting *Darts*. The Seeds of *Broom*, *vomit* and *purge*, whilſt the *Buds* and *Flowers*, being *pickled*, are very grateful. CH. XX.

18. Laſtly, (*Sambucus*) a conſiderable *Fence* may be made of the *Elder*, ſet of reaſonable luſty *Trunchions*, much like the *Willow*, and (as I have ſeen them maintained) laid with great Curioſity, and far excelling thoſe extravagant Plantations of them about *London*, where the *Lops* are permitted to grow without due and skilful laying. There is a Sort of *Elder* which has hardly any *Pith*; this makes exceeding ſtout *Fences*, and the *Timber* very uſeful for *Cogs* of *Mills*, Butchers *Skewers*, and ſuch tough Employments. Old *Trees* do in Time become firm, and cloſe up the *Hollowneſs* to an almoſt inviſible *Pith*. But if the *Medicinal* Properties of the *Leaves*, *Bark*, *Berries*, &c. were thoroughly known, I cannot tell what our *Country-man* could ail, for which he might not fetch a *Remedy* from every *Hedge*, either for *Sickneſs* or *Wound:* The inner *Bark* of *Elder*, applied to any *Burning*, takes out the *Fire* immediately; *That* or, in Seaſon, the *Buds* boiled in *Water-grewel* for a *Break-faſt*, has effected Wonders in a *Fever*; and the *Decoction* is admirable to aſſwage *Inflammations* and *tetrous Humours*, and eſpecially the *Scorbut:* But an *Extract* or *Theriaca* may be compoſed of the *Berries*, which is not only efficacious to eradicate this *epidemical* Inconvenience, and greatly to aſſiſt *Longævity* (ſo famous is the Story of *Neander*) but is a Kind of *Catholicon* againſt all Infirmities whatever: And of the ſame *Berries* is made an incomparable *Spirit*, which drunk by it ſelf, or mingled with *Wine*, is not only an excellent *Drink*, but admirable in the *Dropſie:* In a Word, the *Water* of the *Leaves* and *Berries* is approved in the *Dropſie*; every Part of the *Tree* being uſeful, as may be ſeen at large in *Blockwitzius*'s *Anatomy* thereof. The *Ointment* made with the young *Buds* and *Leaves* in *May* with *Butter*, is moſt ſoveraign for *Aches*, ſhrunk *Sinews*, *Hæmorrhoids*, &c. and the *Flowers* macerated in *Vinegar*, not only are of a grateful reliſh, but good to attenuate and cut raw and groſs *Humours*. Laſtly, The *Fungus* (which we call *Jews-Ears*) *decocted* in *Milk*, or macerated in *Vinegar*, is of known Effect in the *Angina* and Sores of the *Throat*. And leſs than this could I not ſay (with the Leave of the charitable *Phyſician*) to gratifie our poor *Wood-man*; and yet when I have ſaid all this, I do by no Means commend the *Scent* of it, which is very noxious to the *Air*; and therefore, though I do not undertake that all Things which ſweeten the *Air*, are ſalubrious, nor all ill Savours pernicious; yet, as not for its Beauty, ſo neither for its Smell, would I plant *Elder* near my Habitation; ſince we learn from *Bieſius*, that a certain Houſe in *Spain*, ſeated amongſt many *Elder-trees*, diſeaſed and killed almoſt all the Inhabitants, which when at laſt they were grubbed up, became a very wholſome and healthy Place. The *Elder* does likewiſe produce a certain green *Fly*, almoſt inviſible, which is exceedingly troubleſome, and gathers a fiery Redneſs where it attacks.

ELDER. USES.

Bieſ. de Aeris poteſtate.

19. There is a *Shrub*, called the *Spindle-Tree*, (*Evonymus*, or *Fuſanum*) commonly growing in our *Hedges*, which bears a very hard *Wood*,

EVONYMUS.

BOOK I. *Wood*, of which they ſometimes made *Bows* for *Viols*, and the *Inlayer* uſed it for its Colour, and *Inſtrument-makers* for *Toothing* of *Organs* and *Virginal-Keys*, *Tooth-Pickers*, *&c.* What we elſe do with it, I know not, ſave that (according with its Name abroad) they make *Spindles* with it. I alſo learn, that three or four of the *Berries*, purge both by *Vomit* and *Siege*, and the *Powder* made of the *Berry*, being baked, kills *Nits*, and cures *ſcurfy Heads*. *Matthiolus* ſays, the poor People about *Trent* preſs *Oil* out of the *Berries*, wherewith to feed their *Lamps:* But why they were wont to ſcourge *Parricides* with *Rods* made of this Shrub, before they put them into the *Sack*, ſee *Modeſtinus L. penult SS. ad Legem Pomp. de Parricid.* cited by Mr. *Ray*.

USES.

DOG-WOOD. Here might come in (or be named at leaſt) *Wild-cornel*, or *Dog-wood*, good to make *Mill-Cogs*, *Peſtles*, *Bobins* for *Bone-lace*, *Spokes* for *Wheels*, *&c.* the beſt *Skewers* for *Butchers*, becauſe it does not taint the Fleſh, and is of ſo very hard a Subſtance, as to make *Wedges* to cleave and rive other *Wood* with, inſtead of *Iron*. But of this, ſee *Chap.* xi. *Book* ii. And *Laſtly*, The *Viburnum*, or *Way-faring-tree*, growing alſo plentifully in every Corner, makes *Pins* for the Yokes of *Oxen*; and ſuperſtitious People think, that it protects their *Cattle* from being *bewitched*, and uſed to plant the *Shrub* about their Stalls; 'tis certainly the moſt pliant and beſt *Bands* to *Faggot* with. The *Leaves* and *Berries* are *aſtringent*, and make an excellent *Gargle* for *looſe Teeth*, *ſore Throats*, and to ſtop *Fluxes*. The *Leaves* decocted to a *Lie*, not only colour the *Hairs* black, but faſten their *Roots*; and the *Bark* of the *Root*, macerated under Ground, well beaten, and often boiled, ſerves for *Birdlime*.

VIBURNUM.

USES.

YUCCA. 20. The *American Yucca* is a *hardier Plant* than we take it to be, for it will ſuffer our ſharpeſt *Winter* (as I have ſeen by Experience) without that Trouble and Care of ſetting it in *Caſes* in our *Conſervatories* of *Hyemation:* Such as have beheld it in *Flower* (which is not indeed till it be of ſome Age) muſt needs admire the Beauty of it; and it being eaſily multiplied, why ſhould it not make one of the beſt and moſt ornamental *Fences* in the World for our *Gardens*, with its natural *Paliſadoes*, as well as the more tender and impatient of Moiſture, the *Aloes*, does for their *Vineyards* in *Languedoc*, *&c?* But *we* believe nothing improveable, ſave what our *Grand-fathers* taught us. Finally, let Trial likewiſe be made of that *Thorn*, mentioned by Captain *Liggon* in his *Hiſtory* of *Barbadoes*, whether it would not be made grow amongſt us, and prove as convenient for *Fences* as there, the *Seeds* or *Sets* tranſported to us with due Care. And thus having accompliſhed what (by your *Commands*) I had to offer concerning the Propagation of the more *ſolid*, *material*, and uſeful *Trees*, as well the *dry* as *aquatical*, and to the beſt of my *Talent* fenced our *Plantation* in; I ſhould here *conclude*, and ſet a *Bound* likewiſe to my *Diſcourſe*, by making an *Apology* for the many *Errors* and Impertinencies of it, did not the *Zeal* and Ambition of this *illuſtrious Society* to promote and improve all *Attempts* which may concern *publick Utility* or *Ornament*, perſwade *me*, that what I am adding for the farther Encouragement to the *planting* of ſome other *uſeful* (though leſs *vulgar*) Trees, will at leaſt obtain your *Pardon*, if it miſs of your *Approbation*.

USES.

FRUIT-TREES. 21. To diſcourſe in this *Stile* of all ſuch *Fruit-trees* as would prove of greateſt *Emolument* to the whole *Nation*, were to deſign a juſt *Volume*; and there are *Directions* already ſo many, and ſo accurately delivered

livered and *publiſhed* (but which cannot be affirmed of any of the former *Claſſes* of *Foreſt-trees*, and other Remarks, at the leaſt to my poor Knowledge and Reſearch) that it would be needleſs to *repeat*. CH. XX.

22. I do only wiſh (upon the Proſpect and Meditation of the univerſal *Benefit*) that every *Perſon* whatſoever, worth *ten Pounds per Annum*, within her *Majeſty's* Dominions, were by ſome indiſpenſible *Statute*, obliged to plant his *Hedge-rows* with the beſt and moſt uſeful *Kinds* of them, eſpecially in ſuch Places of the *Nation*, as being the more in-land *Counties*, and remote from the *Seas* and navigable *Rivers*, might the better be excuſed from the planting of *Timber*, to the *Proportion* of thoſe who are more happily and commodiouſly *ſituated* for the *Tranſportation* of it.

23. Undoubtedly, if this Courſe were taken effectually, a very conſiderable Part both of the *Meat* and *Drink* which is ſpent to our Prejudice, might be ſaved by the *Country People*, even out of the *Hedges* and *Mounds*, which would afford them not only the *Pleaſure* and *Profit* of their delicious *Fruit*, but ſuch abundance of *Cyder* and *Perry*, as ſhould ſuffice them to *drink* of one of the moſt *wholſome* and excellent *Beverages* in the *World*. Old *Gerard* did long ſince alledge us an *Example* worthy to be purſued; *I have ſeen* (ſaith he, ſpeaking of *Apple-trees*, Lib. iii. Cap. ci.) *in the* Paſtures *and* Hedge-rows *about the Grounds of a worſhipful* Gentleman, *dwelling two Miles from* Hereford, *called Mr.* Roger Bodnome, *ſo many Trees of all Sorts, that the* Servants *drink for the moſt part no other* Drink *but that which is made of* Apples: *The Quantity is ſuch, that by the Report of the* Gentleman *himſelf, the* Parſon *hath for* Tythe *many Hogſheads of* Cyder: *The* Hogs *are fed with the Fallings of them, which are ſo many, that they make choice of thoſe* Apples *they do eat, who will not taſte of any but of the beſt. An Example doubtleſs to be followed of* Gentlemen *that have* Land *and* Living: *But* Envy *ſaith, the* Poor *will break down our* Hedges, *and we ſhall have the leaſt part of the* Fruit. *But forward, in the Name of God,* graff, ſet, plant, *and nouriſh up Trees in every Corner of your Ground; the* Labour *is ſmall, the* Coſt *is nothing, the* Commodity *is great; your ſelves ſhall have Plenty, the* Poor *ſhall have ſomewhat in Time of Want to relieve their Neceſſity, and* God *ſhall reward your good Minds and Diligence.* Thus far honeſt *Gerard*. And in Truth, with how ſmall a *Charge* and infinite *Pleaſure* this were to be effected, every one that is *Patron* of a little *Nurſery*, can eaſily calculate: But by this *Expedient* many thouſands of *Acres*, ſowed now yearly with *Barley*, might be cultivated for *Wheat*, or converted into *Paſture*, to the increaſe of *Corn* and *Cattle*: Beſides, the *Timber* which the *Pear-tree*, *Black-cherry* and many thorny *Plums* (which are beſt for *Grain*, *Colour*, and *Gloſs*) afford, comparable (for divers curious *Uſes*) with any we have enumerated. The *Black-cherry-wood* grows ſometimes to that Bulk, as is fit to make *Stools* with, *Cabinets*, *Tables*, eſpecially the *redder* Sort, which will poliſh well; alſo *Pipes*, and *muſical Inſtruments*; the very *Bark* employed for *Bee-hives*: But of this I am to render a more ample *Account* in the *Appendix* to this *Diſcourſe*. I would farther recommend the more frequent planting and Propagation of *Fir*, *Pine-trees*, and ſome other beneficial *Materials*, both for *Ornament* and *Profit*; eſpecially, ſince we find by *Experience*, they thrive ſo well, where they are cultivated for *Curioſity* only.

DENDROLOGIA.

BOOK II.

CHAP. I.

Of the Mulberry.

Book II. MULBERRY.

1. MOrus, the *Mulberry:* It may poſſibly be wondered by ſome why we ſhould inſert this *Tree* amongſt our *Foreſt* Inhabitants; but we ſhall ſoon reconcile our induſtrious *Planter*, when he comes to underſtand the incomparable Benefit of it, and that for its *Timber*, Durableneſs, and *Uſe* for the *Joyner* and *Carpenter*, and to make *Hoops*, *Bows*, *Wheels*, and even *Ribs* for ſmall *Veſſels*, inſtead of *Oak*, *&c.* though the *Fruit* and the *Leaves* had not the due Value with us, which they deſervedly enjoy in other Places of the World.

USES.

2. But it is not here I would recommend our ordinary *black Fruit* Bearers, though that be likewiſe worth the Propagation; but that *Kind* which is called the *white Mulberry* (which I have had ſent me out of *Languedoc*) one of them of a *broad Leaf*, found there and in *Provence*, whoſe Seeds being procured from *Paris*, where they have it from *Avignon*, ſhould be thus treated in the *Seminary*.

3. In Countries where they cultivate them for the *Silk-worm*, and other Uſes, they ſow the perfectly mature *Berries* of a *Tree*, whoſe Leaves have not been gathered; theſe they ſhake down upon an old *Sheet* ſpread under the *Tree*, to protect them from *Gravel* and Ordure, which will hinder you from diſcerning the *Seed:* If they be not ripe, lay them to mature upon Shelves, but by no Means till they corrupt; to prevent which, turn them daily; then put them in a fine *Sieve*, and plunging it in *Water*, bruiſe them with your Hand; do this in ſeveral *Waters*, then change them in other clear *Water*, and the *Seed* will ſink to the Bottom, whilſt the *Pulp* ſwims, and muſt be taken off carefully: This done, lay them to dry in the *Sun* upon a Linnen Cloth, for which one Hour is ſufficient, then *van* and ſift it from the *Husks*, and reſerve it till the Seaſon. This is the Proceſs of curious Perſons; but the ſowing of ripe *Mulberries* themſelves is altogether as good, and from the Excrement of *Hogs*, and even *Dogs* (that will frequently eat them) they will riſe abundantly. *Note*, That in ſowing of the *Berry*, 'tis good to ſquaſh and bruiſe them with fine ſifted *Mould*, and if it be rich, and of the *old Bed*, ſo much the better: They would be interred, well moiſtned and covered with *Straw*, and then rarely watered till they peep; or you may ſqueeſe the ripe *Berries* in Ropes of *Hair* or *Baſt*, and bury them, as is preſcribed for *Hips* and *Haws:* The Earth in which you ſow them, ſhould be fine *Mould*, and as rich as for *Melons*, raiſed

raiſed a little higher than the *Area*, as they make the Beds for ordinary *Pot-herbs*, to keep them looſe and warm, and in ſuch *Beds* you may ſow *Seeds* as you do *Purſlane*, mingled with ſome fine *Earth*, and thinly covered, and then for a Fortnight ſtrewed over with *Straw*, to protect them both from ſudden *Heat* and from *Birds*: The Seaſon is *April* or *May*, though ſome forbear even till *July* and *Auguſt*, and in the ſecond Quarter of the *Moon*, the Weather calm and ſerene. At the Beginning, keep them moderately freſh (not over wet) and clean *weeded*, ſecured from the Rigour of *Froſts*; the ſecond Year of their Growth, about the Beginning of *October*, or early *Spring*, draw them gently out, prune the *Roots*, and dipping them a little in *Pond-water*, tranſplant them in a warm Place or *Nurſery*; 'tis beſt ranging them in *Drills*, two Foot large, and one in *Depth*, each *Drill* three Foot Diſtance, and each *Plant* two. And if thus the new Earth be ſomewhat lower than the Surface of the reſt, 'twill the better receive the *Rain*. Being planted, cut them all within three *Inches* of the Ground. Water them not in *Winter*, but in extream Neceſſity, and when the Weather is warm, and then do it in the Morning. In this *cold* Seaſon you ſhall do well to cover the Ground with the Leaves of *Trees*, *Straw*, or ſhort *Litter*, to keep them warm; and every Year you ſhall give them three *Dreſſings* or half Diggings; *viz.* in *April*, *June* and *Auguſt*; this, for the *firſt* Year, ſtill after *Rain*: The ſecond *Spring* after *tranſplanting*, purge them of all ſuperfluous *Shoots* and *Cions*, reſerving only the moſt towardly for the future *Stem*; this to be done yearly, as long as they continue in the *Nurſery*; and if of the principal *Stem* ſo left, the *Froſt* mortifie any Part, cut it off, and continue this Government till they are near *ſix Foot* high; after which ſuffer them to ſpread into *Heads*, by diſcreetly *pruning* and faſhioning them: But if you plant where *Cattle* may endanger them, the *Stem* had need be taller, for they are extreamly liquoriſh of the Leaves.

4. When now they are about five Years Growth, you may *tranſplant* them without cutting the *Root* (provided you eradicate them with Care) only trimming the *Head* a little; the Seaſon is from *September* to *November* in the *New-Moon*, and if the *Holes* or *Pits* you ſet them in were dug and prepared ſome *Months* before, it would much ſecure their taking: Some caſt *Horns*, *Bones*, *Shells*, *&c.* into them, the better to looſen the Earth about them, which ſhould be rich, and well refreſhed all *Summer*. A light, and dry *Mould* is beſt, well expoſed to the *Sun* and *Air*, which above all things this *Tree* affects, and hates *watery* low Grounds: In Sum, being a very laſting Tree, they thrive beſt where *Vines* proſper moſt, whoſe Society they exceedingly cheriſh; nor do they leſs delight to be amongſt *Corn*, no Way prejudicing it with its *Shade*. The *Diſtance* of theſe *Standards* would be twenty, or twenty-four Foot every Way, if you would deſign *Walks* or *Groves* of them; if the Environs of *Fields*, Banks of *Rivers*, *High-ways*, *&c.* twelve or fourteen Foot may ſuffice, but the farther diſtant the better; for the *White* ſpreads its Root much farther than the *Black*, and likes the *Valley* more than the higher Ground.

5. Another Expedient to increaſe *Mulberries*, is by *Layers* from the *Suckers* at the Foot; this done in *Spring*, leaving not above two *Buds* out of the Earth, which you muſt diligently *water*, and the ſecond Year they will be rooted: They will alſo take, by paſſing any Branch or Arm ſlit, and kept a little open with a *Wedge*, or Stone,

through

Book II. through a Basket of *Earth*, which is a very ſure Way: Nay, the very *Cuttings* will ſtrike in *Spring*, but let them be from *Shoots* of two Years Growth, with ſome of the *old* Wood, though of ſeven or eight Years; theſe ſet in *Rills*, like *Vines*, having two or three *Buds* at the Top, will *root* infallibly, eſpecially if you *twiſt* the *old Wood* a little, or at leaſt *hack* it; though ſome ſlit the *Foot*, inſerting a *Stone*, or Grain of an *Oat*, to ſuckle and entertain the *Plant* with Moiſture.

6. They may alſo be propagated by *Graffing* them on the *black Mulberry* in *Spring*, or *Inoculated* in *July*, taking the *Cyons* from ſome old Tree, that has broad, even, and round Leaves, which cauſes it to produce very ample and tender Leaves, of great Emolument to the *Silk-maſter*.

7. Some experienced *Husbandmen* adviſe to Poll our *Mulberries* every three or four Years, as we do our *Willows*; others not till eight Years; both erroneouſly. The beſt way is yearly to *prune* them of their dry and ſuperfluous Branches, and to form their *Heads* round and natural. The firſt Year of *Removal* where they are to abide, cut off all the *Shoots*, to five or ſix of the moſt promiſing; the next Year leave not above *three* of theſe, which diſpoſe in *Triangle* as near as may be, and then diſturb them no more, unleſs it be to *purge* them (as we taught) of dead *Seare-wood*, and extravagant Parts, which may impeach the reſt; and if afterward any *pruned* Branch ſhoot above three or four *Cyons*, reduce them to that number. One of the beſt Ways of *Pruning*, is what they practiſe in *Sicily* and *Provence*, to make the Head *hollow*, and like a *Bell*, by cleanſing them of their inmoſt Branches; and this may be done, either before they bud, *viz.* in the *New-Moon* of *March*, or when they are full of *Leaves* in *June* or *July*, if the Seaſon prove any Thing freſh. Here I muſt not omit what I read of the *Chineſe* Culture, and which they now alſo imitate in *Virginia*, where they have found a Way to raiſe theſe *Plants* of the *Seeds*, which they *mow* and cut like a *Crop* of *Graſs*, which ſprout, and bear Leaves again in a few Months: They likewiſe (in *Virginia*) have planted them in *Hedges*, as near together as we do *Goosberries* and *Currans*, for their more convenient *Clipping*, which they pretend to do with *Sciſſers*.

8. The *Mulberry* is much *improved* by ſtirring the *Mould* at Root, and *Letation*.

9. We have already mentioned ſome of the *Uſes* of this excellent *Tree*, eſpecially of the *White*, ſo called, becauſe the *Fruit* is of a *paler* Colour, which is alſo of a more *luſcious* Taſte, and leſſer than the *Black*; the *Rind* likewiſe is *whiter*, and the *Leaves* of a *mealy* clear *green* Colour, and far tenderer, and ſooner produced by at leaſt a Fortnight, which is a marvelous Advantage to the newly diſcloſed *Silk-worm*: Alſo they arrive ſooner to their Maturity, and the Food produces a finer *Web*. Nor is this *Tree* leſs beautiful to the Eye than the faireſt *Elm*, very proper for *Walks* and *Avenues*: The *Timber* (amongſt other Properties) will laſt in the *Water* as well as the moſt ſolid *Oak*, and the *Bark* makes good and tough *Baſt-ropes*. It ſuffers no Kind of *Vermin* to breed on it, whether ſtanding or felled, nor dares any *Caterpillar* attack it, ſave the *Silk-worm* only. The *Loppings* are excellent *Fuel*: But that for which this *Tree* is in greateſt and moſt worthy Eſteem, is for the *Leaves*, which (beſides the *Silk-worm*) nouriſhes *Cows*, *Sheep*, and other *Cattle*, eſpecially young *Porkers*, being boiled with a little *Bran*; and the *Fruit* excellent to feed *Poultry*.

In

In Sum, whatever eats of them, will with Difficulty be reduced to endure any Thing elſe, as long as they can come by them: To ſay nothing of their other ſoveraign Qualities, as *relaxing* of the *Belly*, being eaten in the Morning, and curing *Inflammations* and *Ulcers* of the *Mouth* and *Throat*, mixed with *Mel Roſarum*, in which *Receipt* they do beſt, being taken before they are over-ripe. I have * read, that in *Syria* they make *Bread* of them; but that the eating of it makes Men *bald*: As for *Drink*, the Juice of the *Berry* mixed with *Cyder-Apples*, makes an excellent Liquor, both for *Colour* and *Taſte*.

* *Andr. Medicus* apud *Athenæum* Deipnoſ. *Lib.* iii. *Cap.* xxix.

10. To proceed with the *Leaf* (for which they are chiefly cheriſhed) the Benefit of it is ſo great, that they are frequently *let to farm* for vaſt Sums; ſo as ſome one *ſole Tree* has yielded the *Proprietor* a Rent of twenty Shillings *per Annum*, for the *Leaves* only; and ſix or ſeven Pounds of *Silk*, worth as many Pounds Sterling, in five or ſix Weeks, to thoſe who keep the *Worms*. We know that till after *Italy* had made *Silk* above a *thouſand* Years (and where the *Tree* it ſelf was not a Stranger, none of the *Antients* writing any Thing concerning it) they received it not in *France*; it being hardly yet an *hundred*, ſince they betook themſelves to this *Manufacture* in *Provence*, *Languedoc*, *Dauphine*, *Lionnois*, &c. and not in *Tourain* and *Orleans*, till *Hen.* IVth's Time; but it is incredible what a *Revenue* it now amounts to in that *Kingdom*. About the ſame Time, or a little after, it was that King *James* did with extraordinary Care recommend it to this *Nation*, by a *Book* of *Directions*, *Acts* of *Council*, and all other Princely Aſſiſtance. But this did not take, no more than that of *Hen.* IVth's Propoſal about the Environs of *Paris*, who filled the *High-ways*, *Parks*, and *Gardens* of *France* with the Trees, beginning in his own *Gardens* for Encouragement: Yet, I ſay, this would not be brought into Example, till this preſent great *Monarch*, by the indefatigable Diligence of *Monſieur Colbert* (*Superintendent* of *his Majeſty's Manufactures*) who has ſo ſucceſsfully revived it, that 'tis prodigious to conſider what an happy Progreſs they have made in it; to our *Shame* be it ſpoken, who have no other Diſcouragements from any inſuperable Difficulty whatever, but our *Sloth*, and want of *Induſtry*; ſince whereever theſe *Trees* will grow and proſper, the *Silk-worms* will do ſo alſo; and they were alike averſe, and from the very ſame Suggeſtions, where now that *Manufacture* flouriſhes in our *Neighbour* Countries. It is demonſtrable, that *Mulberries* in four or five Years may be made to ſpread all over this *Land*; and when the Indigent, and young *Daughters* in proud Families are as willing to gain three or four Shillings a Day for gathering *Silk*, and buſying themſelves in this ſweet and eaſie *Employment*, as ſome do to get *four Pence* a Day for hard Work at *Hemp*, *Flax* and *Wool*; the Reputation of *Mulberries* will ſpread in *England* and other Plantations. I might ſay ſomething like this of *Saffron*, which we yet too much neglect the *Culture* of; but, which for all this I do not deſpair of ſeeing re-aſſumed, when that good *Genius* returns. In order to this hopeful *Prognoſtick*, we will add a few *Directions* about the gathering of their *Leaves*, to render this *Chapter* one of the moſt accompliſhed, for certainly one of the moſt *accompliſhed* and agreeable *Works* in the World.

11. The *Leaves* of the *Mulberry* ſhould be collected from *Trees* of ſeven or eight Years old; if of ſuch as are very *young*, it impairs their Growth, neither are they ſo healthful for the *Worms*, making them

 hydropical,

BOOK II. *hydropical*, and apt to burſt: As do alſo the *Leaves* of ſuch *Trees* as be planted in a too *wateriſh*, or over rich *Soil*, or where no *Sun* comes, and all ſick and *yellow* Leaves are hurtful. It is better to *clip*, and let the *Leaves* fall upon a ſubtended *Sheet* or *Blanket*, than to gather them by Hand; and to *gather* them, than to *ſtrip* them, which mars and gauls the *Branches*, and bruiſes the *Leaves* that ſhould hardly be touched. Some there are who lop off the *Boughs*, and make it their *pruning*, and it is a tolerable Way, ſo it be diſcreetly done in the over-thick Parts of the *Tree*; but theſe Leaves gathered from a ſeparated Branch, will die, and wither much ſooner than thoſe which are taken from the *Tree* immediately, unleſs you ſet the *Stem* in Water. *Leaves* gathered from Boughs cut off, will ſhrink in three Hours; whereas thoſe you take from the living *Tree*, will laſt as many Days; and being thus a while kept, are better than *over-freſh* ones. It is a *Rule*, never to gather in a *rainy* Seaſon, nor cut any *Branch* whilſt the *Wet* is upon it; and therefore againſt ſuch ſuſpected Times, you are to provide before-hand, and to reſerve them in ſome *freſh*, but *dry* Place: The ſame *Caution* you muſt obſerve for the *Dew*, though it do not rain, for *wet* Food kills the *Worms*. But if this cannot be altogether prevented, put the *Leaves* between a Pair of *Sheets* well dried by the *Fire*, and ſhake them up and down 'till the Moiſture be drunk up in the *Linnen*, and then ſpreading them to the Air a little, on another dry Cloth, you may feed with them boldly. The top Leaves and oldeſt, would be gathered laſt of all, as being moſt proper to *repaſt* the *Worms* with, towards their laſt Change. The *Gatherer* muſt be neat, and have his Hands clean, and his *Bréath* ſweet, and not poiſoned with *Onions* or *Tobacco*, and be careful not to preſs the *Leaves*, by crouding them into the Bags or Baskets. Laſtly, That they *gather* only (unleſs in Caſe of Neceſſity) Leaves from the *preſent*, not from the *former* Years Sprigs, or old *Wood*, which are not only rude and harſh, but are annexed to ſtubbed Stalks, which injure the *Worms*, and ſpoil the denudated Branches. One *Note* more let me add, That in firſt *hatching* the *Eggs* diſcloſing (as ſometimes) earlier than there is Proviſion for them on the *Tree*, the tender Leaves of *Lettuce*, *Dandelion* or *Endive* may ſupply, ſo they feed not on them too long, or over-much, which gives them the *Lask*.

12. This is what I thought fit to premoniſh concerning the *gathering* of the *Leaves* of this *Tree* for *Silk-worms*, as I find it in *Monſieur Iſnard's Inſtructions*, and that exact *Diſcourſe* of his, publiſhed ſome Years ſince, and dedicated to *Monſieur Colbert* (who has, it ſeems, conſtituted this induſtrious and experienced *Perſon*, *Surveyor* of this princely *Manufacture* about *Paris*) and becauſe the *Book* it ſelf is *rare*, and known by very few. I have no more to add, but *this* for our *Encouragement*, and to encounter the *Objections* which may be ſuggeſted about the Coldneſs and Moiſture of our *Country*; that the *Spring* is in *Provence* no leſs *inconſtant* than is ours in *England*; that the Colds at *Paris* are altogether as *ſharp*; and that when in *May* it has continued *raining* for *nine and twenty* Days ſucceſſively, *Monſieur Iſnard* aſſures us, he proceeded in his *Work* without the leaſt Diſaſter; and in the *Year* 1664, he preſented the *French King* his *Maſter*, with a conſiderable Quantity of better *Silks* than any *Meſſina* or *Bononia* could produce, which he ſold *raw* at *Lions*, for a *Piſtol* the *Pound*; when that of *Avignon*, *Provence* and *Dauphine* produced little above *half* that Price.

Price. But you are to receive the compleat *Hiſtory* of the *Silk-worm*, from that incomparable *Treatiſe* which the learned *Malpighius* has lately ſent out of *Italy*, and dedicated to the *Royal Society*, as a *Specimen* and noble *Effect* of its univerſal *Correſpondence* and *Concernments* for the Improvement of *uſeful Knowledge*. To this I add that beneficial Paſſage of the learned Dr. *Beal*, communicated in the twelfth Volume of *Philoſophical Tranſactions*, Number cxxxiii. p. 816. where we find recommended the Promotion of this *Tree* in *England*, from its Succeſs in ſeveral *Northern Countries*, and even in the moiſt Places of *Ireland:* He ſhews how it may be improved by *graffing* on the *Fig*; or the larger *black Mulberry*, on that of the *ſmalleſt* Kind: Alſo of what Requeſt the *Diamoron*, or *Guidenie* made of the *Juice* of this *Fruit*, was with the *Antients*, with other excellent Obſervations: What other incomparable Remedies the *Fruit* of this *Tree* affords, ſee *Pliny*'s *Natural Hiſtory*, Lib. xxiii. Chap. vii. There is a *Mulberry-tree* brought from *Virginia* not to be contemned; upon which they find *Silk-worms*, which would exceed the *Silk* of *Perſia* it ſelf, if the *Planters* of nauſeous *Tobacco* did not hinder the *Culture*. Sir *Jo. Berkley* (who was many Years *Governor* of that ample *Colony*) told me, he preſented the King (*Charles* II.) with as much of *Silk* made there, as made his *Majeſty* a compleat *Suit* of *Apparel*. *Laſtly*, Let it not ſeem altogether impertinent, if I add one Premonition to thoſe leſs experienced *Gardeners*, who frequently expoſe their *Orange*, and like tender Furniture-Trees of the *Green-houſe* too early: That the firſt Leaves putting forth of this *wiſe* Tree (*Sapientiſſima*, as * *Pliny* calls it) is a more infallible Note when thoſe delicate *Plants* may be ſafely brought out to the Air, than by any other *Prognoſtick* or Indication. For other *Species*, *vid. Raii Dendro.* p. xii.

CHAP. I.

* *A Mora, ob tarditatem.*

CHAP. II.

Of the Platanus, Lotus, Cornus, Acacia, &c.

1. *Platanus*, *that* ſo beautiful and precious *Tree*, antiently ſacred to * *Helena* (and with which ſhe crowned the *Lar*, and *Genius* of the Place) was ſo doated on by *Xerxes*, that *Ælian* and other *Authors* tells us, he made *Halt*, and ſtopped his prodigious *Army* of *ſeventeen hundred thouſand* Soldiers, which even covered the *Sea*, exhauſted *Rivers*, and thruſt Mount *Athos* from the *Continent*, to admire the Pulcritude and *Procerity* of one of theſe goodly *Trees*; and became ſo fond of it, that ſpoiling both *himſelf*, his *Concubines*, and great Perſons of all their *Jewels*, he covered it with *Gold*, *Gems*, *Necklaces*, *Scarfs* and *Bracelets*, and infinite Riches: In ſum, was ſo *enamoured* of it, that for ſome Days, neither the Concernment of his Grand *Expedition*, nor Intereſt of *Honour*, nor the neceſſary Motion of his portentous *Army*, could perſwade him from it: He ſtiled it his *Miſtreſs*, his *Minion*, his *Goddeſs*; and when he was forced to part from it, he cauſed the Figure of it to be ſtamped in a *Medal* of *Gold*, which he continually wore about him. Where-ever they built their ſumptuous and magnificent *Colleges* for the Exerciſe of *Youth* in *Gymnaſtics*, as *Riding*, *Shooting*, *Wreſtling*, *Running*, *&c.* (like to our *French Academies*) and where the graver *Philoſophers* alſo met to converſe

PLATANUS.

* *Euripides Epithai.*

BOOK II. verſe together and improve their *Studies*, betwixt the *Xiſta* and *Subdiales ambulationes* (which were *Portico's* open to the Air) they planted *Groves* and *Walks* of *Platans*, to refreſh and ſhade the *Palæſtritæ*; as you have them deſcribed by *Vitruvius*, Lib. v. Chap. xi. and as *Claudius Perrault* has aſſiſted the *Text*, with a *Figure*, or *Ichnographical* Plot. Theſe *Trees* the *Romans* firſt brought out of the *Levant*, and cultivated with ſo much Induſtry and Coſt, for their ſtately and proud Heads only, that great *Orators* and *Stateſmen*, *Cicero* and *Hortenſius*, would exchange now and then a *Turn* at the *Bar*, that they might have the Pleaſure to ſtep to their *Villas*, and refreſh their *Platans*, which they would often *irrigate* with *Wine* inſtead of *Water*; *Crevit & affuſo letior umbra mero:* when *Hortenſius* taught *Trees* to *tipple Wine*; and ſo prized the very *Shadow* of it, that when afterwards they tranſplanted them into *France*, they exacted a * *Solarium* and *Tribute* of any of the *Natives* who ſhould preſume but to put his *Head* under it. But whether for any Virtue extraordinary in the *Shade*, or other propitious Influence iſſuing from them, a worthy *Knight*, who ſtayed at *Iſpahan* in *Perſia*, when that famous City was infected with a raging *Peſtilence*, told me, that ſince they have planted a greater Number of theſe noble Trees about it, the *Plague* has not come nigh their Dwellings. *Pliny* affirms, there is no *Tree* whatſoever which ſo well defends us from the *Heat* of the *Sun* in Summer, nor that admits it more kindly in Winter. And for our Encouragement, I do upon Experience aſſure you, that they will flouriſh and abide with us, without any more Trouble than frequent and plentiful *watering*, which from their Youth they exceſſively delight in, and gratefully acknowledge by their Growth accordingly; ſo as I am perſwaded that, with very ordinary Induſtry, they might be propagated to the incredible *Ornament* of the *Walks* and *Avenues* to great Mens Houſes. The Introduction of this true *Plane* among us is, perhaps, due to the great *Lord Chancellor Bacon*, who planted thoſe (ſtill flouriſhing ones) at *Verulam*; as to mine, to that *honourable Gentleman*, the late Sir *George Crook* of *Oxfordſhire*, from whoſe Bounty I received an hopeful *Plant* now growing in my *Villa:* Nor methinks ſhould it be ſo great a *Rarity*, (if it be true) that being brought from *Sicily*, it was planted as near us as the *Morini*.

Macrob. Saturnal. iii. c. xi.

* *Solarium quod pro ſolo pendetur*, as the *Pandects* name the *Tax* paid for the *Shades* that bear no *Fruit*.

3. There was lately at *Baſil* in *Switzerland*, an antient goodly *Platanetum*, and now in *France* they are come again in Vogue: I know it was antiently accounted ἀνάρπαγον; but they may with us be raiſed of their *Seeds* with Care, in a moiſt Soil, as here I have known them. But the Reaſon of our little Succeſs is, that we very rarely have them ſent us ripe; which ſhould be gathered *late* in *Autumn*, and brought us from ſome more *Levantine* Parts than *Italy*. They come alſo of *Layers* abundantly, affecting a freſh and feeding Ground; for ſo they plant them about their *Rivulets* and *Fountains*. The *Weſt Indian Plane* is not altogether ſo rare, but it riſes to a goodly *Tree*, and bears a very ample and leſs jagged *Leaf:* That the *Turks* uſe their *Platanus* for the building of *Ships*, I learn out of *Ricciolus Hydrog.* Lib. x. Chap. xxxvii. and out of *Pliny*, *Canoos* and *Veſſels* for the *Sea* have been excavated out of their prodigious *Trunks*.

LOTUS. 4. The ſame Opinion have I of the noble *Lotus Arbor* (another Lover of the *Water*) which in *Italy* yields both an admirable *Shade* and *Timber* immortal, growing to a vaſt *Tree*, where they come *ſpontaneouſly*;

ſpontaneouſly; but its Fruit ſeems not ſo tempting as it is ſtoried it was to the Companions of *Ulyſſes:* The firſt who brought the *Lotus* out of *Virginia*, was the late induſtrious *Tradeſcant*. Of this *Wood* are made *Pipes*, and *Wind-inſtruments*, and of its *Root*, Hafts for *Knives*, and other *Tools*, *&c.* The Offer of *Craſſus* to *Domitius* for half a Dozen of theſe *Trees*, growing about an Houſe of his in *Rome*, teſtifies in what Eſteem they were had, for their incomparable Beauty and Uſe. CHAP. II. USES.

The *Cornel Tree*, though not mention'd by *Pliny* for its *Timber*, is exceedingly commended for its Durableneſs and Uſe in *Wheel-work*, *Pins* and *Wedges*, in which it laſts like the hardeſt *Iron*; and it will grow with us to good Bulk and Stature; and the preſerv'd and pickled *Berries* (or *Cherries* rather) are moſt refreſhing, an excellent *Condiment*, and do alſo well in *Tarts*. But that is very odd, which *Mathiolus* affirms upon his own Experience, That one who has been bitten of a *Mad-dog*, if in a Year after he handle the *Wood* of this *Tree*, till it grow warm, relapſes again into his former Diſtemper. CORNEL.

The ſame reported of the *Cornus fœmina*, or *wild Cornel*; which is like the former for Compactedneſs, and made uſe of for *Cart-timber*, and other ruſtick Inſtruments; beſides, for the beſt of *Butchers Skewers*, *Tooth-pickers*, and in ſome Countries abroad they decoct the *Berries*, which preſs'd, yield an *Oil* for the *Lamp*. USES.

Laſtly, The *Acacia*, and that of *Virginian*, deſerves a Place among our *Avenue Trees* (could they be made to grow upright) adorning our Walks with their *exotic* Leaf and ſweet *Flowers*; very hardy againſt the pinching *Winter*, but not ſo Proof againſt its bluſtring *Winds*; though it be armed with *Thorns:* Nor do the *Roots* take ſuch hold of the Ground, inſinuating, and running more like *Liquoriſh*, and apt to *emaciate* the Soil; I will not therefore commend it for *Gardens*, unleſs for the Variety; of which there are ſeveral, ſome without *Thorns:* They love to be planted in moiſt Ground. ACACIA.

One Thing more there is, which (for the Uſe and Benefit which theſe and the like *Exotics* afford us) I would take hold of, as upon all occaſions I do in this Work: Namely, to encourage all imaginary Induſtry of ſuch as travel *foreign* Countries, and eſpecially *Gentlemen* who have Concerns in our *American Plantations*, to promote the Culture of ſuch *Plants* and *Trees* (eſpecially *Timber*) as may yet add to thoſe we find already agreeable to our Climate in *England*. What we have ſaid of the *Mulberry*, and the vaſt Emolument rais'd by the very *Leaves*, as well as *Wood* of that only *Tree* (beſide thoſe we now have mentioned, Strangers till of late, and believed *incicurable* here) were ſufficient to excite and ſtir up our utmoſt Induſtry. Hiſtory tells us, the noble and fruitful Country of *France* was heretofore thought ſo ſteril and barren, that nothing almoſt proſpering in it, the Inhabitants were quite deſerting it, and with their *Wives* and *Children* going to ſeek ſome other more *propitious* Abodes; till ſome of them happening to come into *Italy*, and taſting the *Juice* of the delicious *Grape*, the reſt of their Countrymen took *Arms*, and invaded the *Territories* where thoſe *Vines* grew; which they *tranſplanted* into *Gallia*, and have ſo infinitely improved ſince, that *France* alone yields more of that generous *Liquor*, than not only *Italy* and *Greece*, but all *Europe* and *Aſia* beſide: Who almoſt would believe that the auſtere *Rheniſh*, abounding on the fertile Banks of the *Rhine*, ſhould produce ſo ſoft and

Book II. charming a *Liquor*, as does the ſame *Vine*, planted among the Rocks and Pumices of the ſo remote and mountainous *Canaries*?

This for the Encouragement and Honour of thoſe who improve their Countries with Things of *Uſe* and general Benefit: Now in the mean Time, how have I beheld a *Floriſt*, or meaner *Gardener* tranſported at the caſual Diſcovery of a new little *Spot*, *double Leaf*, *Streak* or *Daſh* extraordinary in a *Tulip*, *Anemony*, *Carnation*, *Auricula* or *Amuranth!* cheriſhing and calling it by their own Names, raiſing the Price of a *ſingle Bulb*, to an enormous Sum; till a Law in *Holland* was made to check that *Tulipa-mania*: The *Floriſt* in the mean Time priding himſelf, as if he had found the *Elixir*, or performed ſome notable Atchievement, and diſcover'd a new Country.

This for the *Defects* (for ſuch thoſe *Variegations* produced by Practice, or Mixture, *Mangoniſms* and *ſtarving* the *Root*, are by Chance met with now and then) of a fading *Flower*: How much more *Honour* then were due in Juſtice to thoſe Perſons, who bring in Things of much real Benefit to their Country? Eſpecially Trees for *Fruit* and *Timber*; the *Oak* alone (beſides the Shelter it afforded to our late Sovereign *Charles* II.) having ſo often ſav'd and protected the whole Nation from *Invaſion*, and brought it in ſo much *Wealth* from foreign Countries. I have been told, there was an Intention to have inſtituted an *Order* of the *Royal-Oak*; and truly I ſhould think it to become a *Green-Ribbon* (next to that of St. *George*) ſuperior to any of the *Romantick Badges*, to which Abroad is paid ſuch Veneration, deſervedly to be worn by ſuch as have *ſignaliz'd* themſelves by their Conduct and Courage, for the *Defence* and *Preſervation* of their Country. Beſpeaking my *Reader*'s Pardon for this *Digreſſion*, we proceed in the next to other uſeful *Exoticks*.

CHAP. III.

Of the Fir, Pine, Pinaſter, Pitch-tree, Larſh, and Subterranean Trees.

Fir. 1. *Abies*, *Picea*, *Pinus*, *Pinaſter*, *Larſh*, &c. are all of them eaſily rais'd of the *Kernels* and *Nuts*, which may be gotten out of their *Polyſperm* and *Turbinate*, *Cones*, *Clogs*, and *Squams*, by expoſing them to the *Sun*, or a little before the *Fire*, or in *warm Water*, till they begin to gape, and are ready to deliver themſelves of their numerous Burthens.

2. There are of the *Fir* two principal *Species*; the *Picea*, or *Male*, which is the bigger Tree; very beautiful and aſpiring, and of an harder Wood, and *hirſute* Leaf; and the *Silver-Fir*, or *Female*. I begin with the firſt: The Boughs whereof are flexible and bending; the *Cones* dependent, long and ſmooth, growing from the Top of the Branch; and where gaping, yet retain the Seeds in their Receptacles, when freſh gather'd, giving a grateful Fragrancy of the *Roſin*: The *Fruit* is ripe in *September*. But after all, for a perfecter Account of the *true* and *genuine Fir-tree* (waving the Diſtinction of *Sapinum* from *Sapinus*, *literâ ſed unâ* differing, as of another kind) is a noble upright Tree from the Ground, ſmooth and even, to the Eruption of the Branches; as is that they call the *Sapinum*, and thence tapering to the *Summit* of the

the *Fuſterna :* The Arms and Branches (with *Yew*-like Leaves) grow from the Stem oppoſite to one another, *ſeriatim* to the Top (as do all *Cone-bearers*) diſcovering their Age; which in Time, with their Weight, bend them from their natural Tendency, which is upright, eſpecially toward the Top of aged Trees, where the Leaf is flattiſh, and not ſo regular: The *Cone* great and hard, *Pyramidal* and full of *Winged-ſeeds.*

The *Silver-Fir*, of a whitiſh Colour, like *Roſemary* under the Leaf, is diſtinguiſhed from the reſt, by the *pectinal* Shape of it: The *Cones* not ſo large as the *Picea*, grow alſo upright, and this they call the *Female :* For I find *Botaniſts* not unanimouſly agreed about the *Sexes* of *Trees.* The *Layers*, and even *Cuttings* of this Tree, take *Root*, and improve to *Trees*, tho' more naturally by its *Winged-ſeeds :* But the *maſculine Picea* will endure no *Amputation*, nor is comparable to the *ſilver Fir* for Beauty, and ſo fit to adorn *Walks* and *Avenues*; though the other alſo be a very ſtately Plant, yet with this Infirmity, that though it remain always *green*, it ſheds the old Leaves more viſibly, and not ſeldom breaks down its ponderous Branches: Beſides, the *Timber* is nothing ſo white; though yet even *that* Colour be not always the beſt *Character :* That which comes from *Bergin*, *Swinſund*, *Mott*, *Longland*, *Dranton*, &c. (which experienc'd Workmen call the *Dram*) being long, ſtrait and clear, and of a Yellow more *Cedry* Colour, is eſteemed much before the *White* for *Flooring* and *Wainſcot*, for *Maſts*, &c. thoſe of *Pruſſia*, which we call *Spruce*, and *Norway* (eſpecially from *Gottenberg*) and about *Riga*, are the beſt; unleſs we had more Commerce of them from our *Plantations* in *New-England*, which are preferable to any of them; there lying rotting at preſent at *Paſcataway*, a *Maſt* of ſuch prodigious Dimenſions, as no Body will adventure to ſhip and bring away. All theſe bear their *Seeds* in *Conick Figures* and *Squamons*, after an admirable Manner and Cloſeneſs, to protect their *Winged-ſeeds.*

The *Hemlock-tree* (as they call it in *New-England*) is a kind of *Spruce :* In the *Scotiſh Highlands* are *Trees* of wonderful Altitude (though not altogether ſo tall, thick and fine as the former) which grow upon Places ſo unacceſſible, and far from the *Sea*, that (as one ſays) they ſeem to be planted by *God* on purpoſe for *Nurſeries* of *Seed*, and Monitors to our *Induſtry*, reſerved with other Bleſſings, to be diſcover'd in our Days amongſt the new-invented *Improvemens* of *Husbandry*, not known to our *Southern* People of this *Nation*, &c. Did we conſider the Pains they take to bring them out of the *Alps*, we ſhould leſs ſtick at the Difficulty of tranſporting them from the utmoſt Parts of *Scotland.* To the former Sorts we may add the *Eſterund* Firs, *Tonsberry*, *Frederick-ſtad*, *Hellerone*, *Holmſtrand*, *Landifer*, *Stavenger*, *Lawrwat*, &c. There is likewiſe a kind of *Fir* call'd in *Dutch* the *Green-boome*, much us'd in building of *Ships*, though not for *Men* of *War*, becauſe of its Lightneſs, and that it is not ſo ſtrong as *Oak*; but yet proper enough for *Veſſels* of great *Burden*, and which ſtand much out of the *Water :* This Sort comes into *Holland* from *Norway*, and other *Eaſtland* Countries; it is ſomewhat heavier yet than *Fir*, and ſtronger, nor do either of them bend ſufficiently: As to the *Seeds*, they may be ſown in *Beds* or *Caſes* at any Time, during *March*; and when they *peep*, carefully defended with *Furzes*, or the like *Fence*, from the rapacious *Birds*, which are very apt to

pull

pull them up, by taking hold of that little *infecund* Part of the *Seed*, which they commonly bear upon their Tops: The *Beds* wherein you ſow them, had need be ſheltered from the Southern *Aſpects*, with ſome *Skreen* of *Reed*, or thick *Hedge*: Sow them in ſhallow *Rills*, not above half-Inch-deep, and cover them with fine light Mould: Being riſen a Finger in Height, eſtabliſh their weak *Stalks*, by ſifting ſome more Earth about them; eſpecially the *Pines*, which being more *Top-heavy*, are more apt to ſwag. When they are of two or three Years Growth, you may *tranſplant* them where you pleaſe; and when they have gotten good Root, they will make prodigious Shoots, but not for the three or four firſt Years comparatively. They will grow both in moiſt and barren *Gravel* and poor Ground, ſo it be not over-*ſandy* and light, and want a *loamy* Ligature; but before ſowing (I mean *here* for large Deſigns) turn it up a Foot deep, ſowing, or ſetting your *Seeds* an Hand diſtance, and riddle Earth upon them: In five or ſix Weeks they will peep. When you *tranſplant*, water them well before, and cut the *Clod* out about the *Root*, as you do *Melons* out of the *Hot-bed*, which knead cloſe to them like an *Egg*: Thus they may be ſent ſafely many *Miles*, but the *Top* muſt neither be bruiſed, nor much leſs cut, which would *dwarf* it for ever: One kind alſo will take off *Slips* or *Layers*, interr'd about the latter End of *Auguſt*, and keep moiſt.

3. The beſt Time to tranſplant, were in the Beginning of *April*; they would thrive mainly in a ſtiff, hungry *Clay*, or rather *Loam*; but by no means in over-light, or rich *Soil*: Fill the Holes therefore with ſuch barren *Earth*, if your Ground be improper of it ſelf; and if the *Clay* be too ſtiff and untractable, with a little *Sand*, removing with as much *Earth* about the *Roots* as is poſſible, though the *Fir* will better endure a naked *Tranſplantation* than the *Pine*: If you be neceſſitated to plant towards the latter End of *Summer*, lay a pretty deal of *Horſe-litter* upon the Surface of the Ground, to keep off the Heat, and in *Winter* the Cold; but let no *Dung* touch either Stem or Root: You may likewiſe *ſow* in ſuch Earth about *February*, they will make a *Shoot* the very *firſt* Year of an *Inch*; *next* an Handful, the *third* Year three Foot, and thence-forward, above a Yard *annually*. A *Northern Gentleman* (who has obliged me with this *Proceſs* upon his great *Experience*) aſſures me, that *Fir*, and this *Feralis Arbor* (as *Virgil* calls the *Pine*) are abundantly planted in *Northumberland*, which are in few Years grown to the Magnitude of *Ship-maſts*; and from all has been ſaid, deduces theſe *Encouragements*. 1. The Facility of their *Propagation*. 2. The Nature of their *Growth*, which is to affect Places where nothing elſe will thrive. 3. Their *Uniformity* and Beauty. 4. Their perpetual *Verdure*. 5. Their *Sweetneſs*. 6. Their *Fruitfulneſs*; affording *Seed*, *Gum*, *Fuel*, and *Timber*, of all other Woods the moſt uſeful and eaſy to *work*, &c. All which highly recommend it as an excellent *Improvement* of *Husbandry*, fit to be enjoyn'd by ſome ſolemn *Edict*, to the *Inhabitants* of this our *Iſland*, that we may have *Maſts*, and thoſe other *Materials* of our own Growth: In planting the *ſilver Abies*, ſet not the Roots too deep, it affects the Surface more than the reſt.

PINE. 4. The *Pine* (of which are reckon'd no leſs than *ten* ſeveral Sorts, preferring the *Domeſtic*, or *Sative*, for the fuller Growth) is likewiſe of both *Sexes*, whereof the *Male* growing lower, with a rounder Shape, hath

hath its *Wood* more knotty and rude than the *Female*; it's lank, longer, narrow and pointed; bears a black, thick, large *Cone*, including the *Kernel* within an hard Shell, covered under a thick Scale: The *Nuts* of this Tree (not much inferior to the *Almond*) are uſed, among other Ingredients, in *Beatilla-Pies*, at the beſt *Tables*. They would be gathered in *June*, before they gape; yet having hung *two* Years (for there will be always ſome *ripe*, and ſome *green* on the ſame *Tree*) preſerve them in their *Nuts*, in *Sand*, as you treat *Acorns*, &c. 'till the Seaſon invite, and then *ſet* or *ſow* them in *Ground* which is cultivated like the *Fir* in moſt Reſpects; only, you may bury the *Nuts* a little deeper. By a *Friend* of mine they were rolled in a fine *Compoſt* made of *Sheeps-dung*, and ſcattered in *February*, and this way never failed *Fir* and *Pine*; they came to be above *Inch* high by *May*; and a *Spaniſh Author* tells us, that to *macerate* them five Days in a *Child's Urine*, and three Days in *Water*, is of wonderful Effect: This were an expeditious *Proceſs* for great *Plantations*; unleſs you would rather ſet the *Pine* as they do *Peaſe*, but at wider Diſtances, that when there is occaſion of removal, they might be taken up with the *Earth* and all, I ſay, *taken up*, and not removed by *Evulſion*, becauſe they are (of all other *Trees*) the moſt obnoxious to miſcarry without this Caution; and therefore it were much better (where the *Nuts* might be commodiouſly ſet and *defended*) never to *remove* them at all, it gives this *Tree* ſo conſiderable a Check. The ſafeſt Courſe of all, were to ſet the *Nuts* in an *Earthen-pot*, and in froſty Weather, ſhewing it a little to the *Fire*, the entire *Clod* will come out with them, which are to be reſerved, and ſet in the *naked* Earth, in convenient and fit *Holes* prepared before Hand, or ſo ſoon as the *Thaw* is univerſal. Some commend the ſtrewing a few *Oats* at the Bottom of the *Foſſes* or *Pits* in which you tranſplant the naked *Roots*, for a great Promotement of their taking, and that it will cauſe them to ſhoot more in *one* Year than in *three*: but to this I have already ſpoken. Other Kinds not ſo rigid, nor the *Bark*, *Leaf*, *Cone* and *Nuts* ſo large, are thoſe called the *Mountain-Pine*, a very large ſtately Tree: There is likewiſe the *wild*, or *Baſtard-Pine*, and *Teä*, clad with thin long Leaves, and bearing a *turbinated Cone*: Abundance of excellent *Roſin* comes from this *Tree*. There is alſo the *Pinaſter*, another of the wild Kind; but none of them exceeding the *Spaniſh*, called by us, the *Scotch Pine*, for its tall and erect Growth, proper for large and ample *Walks* and *Avenues*: ſeveral of the other *wild* Sorts, inclining to grow crooked. But for a more accurate Deſcription of theſe *Coniferous* Trees, and their perfect *Diſtinctions*, conſult our Mr. *Ray*'s moſt elaborate and uſeful Work, where all that can be expected or deſired, concerning this profitable, as well as beautiful Tree, is amply ſet down, *Hiſt. Plant.* Lib. xxv. Cap. i.

5. I am aſſured (by a Perſon moſt worthy of Credit) that in the *Territory* of *Alzey* (a Country in *Germany*, where they were miſerably diſtreſſed for *Wood*, which they had ſo deſtroyed as that they were reduced to make uſe of *Straw* for their beſt *Fuel*) a very large *Tract* being newly plowed (but the *Wars* ſurprizing them, not ſuffered to ſow) there ſprung up the next Year a whole Foreſt of *Pine-trees*, of which Sort of *Wood* there was none at all within leſs than *fourſcore* Miles; ſo as 'tis verily conjectured by ſome, they might be wafted thither from the Country of *Weſtraſia*, which is the neareſt Part to that where they grow: If this be true, we are no more to wonder how,

Book II. when our *Oak-woods* are grubbed up, *Beech*, and Trees of *other Kinds*, have frequently ſucceeded them: What ſome impetuous *Winds* have done in this Nature, I could produce Inſtances almoſt *miraculous*: I ſhall ſay nothing of the Opinion of our Maſter *Varro*, and the learned * *Theophraſtus*, who were both of a Faith that the *Seeds* of *Plants* dropped out of the *Air*. *Pliny*, in his *Book* xvi. *Chap.* xxxiii. upon Diſcourſe of the *Cretan Cypreſs*, attributes much to the *Indoles*, and Nature of the *Soil*, *Virtue* of the *Climate*, and *Impreſſions* of the *Air*. And indeed it is very ſtrange, what is affirmed of that *Pitchy-rain*, (reported to have fallen about *Cyrene*, the Year 430 *U. C.*) after which, in a ſhort Time, ſprung up a whole *Wood* of the Trees of *Laſerpitium*, producing a precious *Gum*, not much inferior to *Benzoin*, if at leaſt the *Story* be warrantable: But of theſe *Aerial Irradiations*, various *Conceptions*, and *æquivocal* Productions without *Seed*, &c. Difficulties to be ſolved by our *Philoſophers*, whence thoſe *Leaves* of the *Platan* come, which Dr. *Spon* tells us (in his *Travels*) are found floating in ſome of the Fountains of the *Iſles* of the *Strophades*; no ſuch Tree growing near them by thirty *Miles*: But theſe may haply be conveyed through ſome unknown *ſubterranean* Paſſage; for were it by the *Wind*, it having a very large Leaf, they would be ſeen flying in, or falling out of the *Air*.

* *De Cauſis*, Lib. i. Cap. v.

6. In tranſplanting of theſe *Coniferous* Trees, which are generally *Reſinaceous*, viz. *Fir*, *Pine*, *Larix*, *Cedar*, and which have but thin and ſingle *Roots*, you muſt never diminiſh their *Heads*, nor be at all buſie with their *Roots*, which pierce deep, and is all their Foundation, unleſs you find any of them bruiſed, or much broken; therefore ſuch down-right *Roots* as you may be forced to cut off, it were ſafe to ſear with an *hot Iron*, and prevent the Danger of bleeding, to which they are obnoxious even to Deſtruction, though unſeen, and unheeded: Neither may you *disbranch* them, but with great Caution, as about *March*, or before, or elſe in *September*, and *then* 'tis beſt to prune up the ſide *Branches* cloſe to the *Trunk*, cutting off all that are above a *Year* old; if you ſuffer them too long, they grow too big, and the *Cicatrice* will be more apt to ſpend the *Tree* in *Gum*; upon which Accident, I adviſe you to rub over their *Wounds* with a Mixture of *Cow-dung*; the Neglect of this coſt me dear, ſo apt are they to ſpend their *Gum*. Indeed, the *Fir* and *Pine* ſeldom out-live their being lopped. Some adviſe us to break the Shells of *Pines*, to facilitate their *Delivery*, and I have eſſayed but to my Loſs; *Nature* does *obſtetricate* and do that Office of her ſelf, when it is the proper Seaſon; neither does this Preparation at all prevent thoſe which are ſo buried, whilſt their hard *Integuments* protect them both from *rotting*, and the *Vermin*.

Pinaster. *Pinaſtes*, the *domeſtick Pine* grows very well with us, both in *Mountains* and *Plains*; but the *Pinaſter*, or wilder (of which are four Sorts) beſt for *Walks*; *Pulcherrima in hortis* (as already we have ſaid) becauſe it grows tall and proud, maintaining their Branches at the Sides, which the other *Pine* does leſs frequently. There is in *New-England* a very broad *Pine*, which increaſes to a wonderful Bulk and Magnitude, inſomuch as large *Canoos* have been excavated out of the Body of it, without any Addition. But beſide theſe large and *gigantick Pines*, there is the *Spinet*, with ſharp thick *Briſtles*, yielding a *Roſin* or Liquor *odorous*, and uſeful in *Carpentary-work*.

8. The

8. The *Fir* grows talleſt, being planted reaſonable cloſe together; but ſuffers nothing to thrive under them. The *Pine* not ſo *inhoſpitable*; for (by *Pliny*'s good Leave) it may be ſown with any *Tree*, all Things growing well under its *Shade*, and excellent in *Woods*: Hence *Claudian*,

[a] *The friendly* Pine *the mighty* Oak *invites.*

9. They both affect the *Cold*, *high* and *rocky* Grounds, *Abies in montibus altis*: Thoſe yet which grow on the more *ſouthern*, and leſs expoſed *Quarters*, a little viſited with the Beams of the *Sun*, are found to thrive beyond the other, and to afford better *Timber*; and this was obſerved long ſince by *Vitruvius* of the *Infernates* (as he calls them) in Compariſon with the *Supernates*, which growing on the *northern* and ſhady Side of the *Appennines*, were nothing ſo good, which he imputes to the want of due Digeſtion. They thrive (as we ſaid) in the moſt ſterile Places, yet will grow in better, but not in over-rich and *pinguid*. The worſt Land in *Wales* bears (as I am told) large *Pine*; and the *Fir*, according to his aſpiring Nature, loves alſo the Mountain more than the *Valley*; but ὂν τοῖς παλισκίοις ὅλως ἃ φύεται, it cannot endure the *Shade*, as *Theophraſtus* obſerves, *de Plin.* Lib. iv. Cap. i. But this is not rigidly true; for they will grow in Conſort, till they even ſhade and darken one another, and will alſo deſcend from the *Hills*, and ſucceed very well, being deſirous of plentiful *Waterings*, till they arrive to ſome competent *Stature*; and therefore they do not proſper ſo well in an over *ſandy* and *hungry* Soil or *Gravel*, as in the very Entrails of the *Rocks*, which afford more *Drink* to the *Roots*, that penetrate into their *Meanders* and winding Receſſes. But though they require this refreſhing at firſt, yet do they perfectly abhor all *Stercoration*; nor will they much endure to have the Earth opened about their *Roots* for *Ablaqueation*, or be diſturbed: This is alſo to be underſtood of *Cypreſs*. A *Fir*, for the firſt half dozen Years, ſeems to ſtand, or at leaſt make no conſiderable Advance, but it is when throughly *rooted*, that it comes away miraculouſly. That honourable and learned Knight, Sir *Norton Knatchbull* (whoſe delicious *Plantation* of *Pines* and *Firs* I beheld with great Satisfaction) having aſſured me, that a *Fir-tree* of his raiſing, did ſhoot no leſs than *ſixty Foot* in *Height*, in little more than *twenty* Years; and what are extant at Sir *Peter Wentworth*'s of *Lillingſton-Lovel*, *Cornbury* in *Oxfordſhire*, and other Places, but eſpecially thoſe *Trees* growing now in *Harefield-Park*, in the County of *Middleſex* (belonging to Mr. Serjeant *Nudigate*) where there are two *Spaniſh*, or *Silver Firs*, that at two Years Growth from the *Seed*, being planted there *Ann.* 1603. are now become goodly *Maſts*: The biggeſt of them from the Ground to the upper Bough, is eighty one Feet, though forked on the Top, which has not a little impeded its Growth: The *Girt*, or *Circumference*, below, is *thirteen Foot*, and the Length (ſo far as is *Timber*, that is, to *ſix Inches* ſquare) ſeventy-three *Foot*, in the middle ſeventeen *Inches* ſquare, amounting by Calculation to one hundred and forty-ſix Foot of good *Timber*: The other *Tree* is indeed not altogether ſo large, by reaſon of its ſtanding near the *Houſe* when it was burnt (about

[a] Et comitem quercum Pinus amica trahit.

forty

BOOK II. forty Years ſince) when one Side of the *Tree* was ſcorched alſo; yet it has not only recovered that Scar, but thrives exceedingly, and is within eight or nine *Foot* as tall as the other, and would probably have been the better of the two, had not that Impediment happened, it growing ſo taper, and erect, as nothing can be more beautiful: *This* I think (if we had no other) is a pregnant Inſtance, as of the ſpeedy growing of that *material*, ſo of all the Encouragement I have already given for the more frequent cultivating this ornamental, uſeful, and profitable *Tree*, abounding doubtleſs formerly in this Country of ours, if what a grave and authentick *Author* writes to be true, *Athenæus* relating, that the ſtupendious *Veſſel*, built ſo many Ages ſince by *Hiero*, had its *Maſt* out of *Britain*. Take notice that none of theſe mountainous *Trees* ſhould be planted deep, but as ſhallow as may be, for their competent Support.

PICEA. The *Picea* (already deſcribed) grows on the *Alps* among the *Pine*, but neither ſo tall, nor ſo upright, but bends its Branches a little, which have the Leaf quite about them, ſhort and thick, not ſo flat as the *Fir*: The *Cones* grow at the Point of the *Branches*, and are much longer than moſt other *Cones*, containing a ſmall darkiſh *Seed*. This *Tree* produces a *Gum* almoſt as white and firm as *Frankincenſe*: But it is the *Larix* (another Sort of *Pine*) that yields the true *Venetian Turpentine*; of which hereafter.

10. There is alſo the *Piceaſter*, already mentioned, a wilder Sort, (the Leaves ſtiff and narrow pointed, and not ſo cloſe) out of which the greateſt ſtore of *Pitch* is boiled. The *Tæda* likewiſe, which is (as ſome think) another Sort abounding in *Dalmatia*, more unctuous, and more patient of the warmer Situations, and ſo inflammable, that it will ſlit into *Candles*; and therefore ſome will by no means admit it to be of a different *Species*, but a *Metamorphoſis* of over-grown Fattineſs, to which the moſt judicious incline. But of theſe, the grand *Canaries* (and all about the Mountains near *Tenariff*) are full, where the Inhabitants do uſually build their *Houſes* with the *Timber* of the *Pitch-tree*: They cut it alſo into *Wainſcot*, in which it ſucceeds marvellouſly well; abating, that it is ſo obnoxious to *firing*, that whenever a Houſe is attacked, they make all imaginable haſte out of the Conflagration, and almoſt deſpair of extinguiſhing it: They there alſo uſe it for *Candle-wood*, and to travel in the Night by the Light of it, as we do by *Links* and *Torches*: Nor do they make theſe *Tëas* (as the *Spaniards* call them) of the *Wood* of *Pine* alone, but of other *Trees*, as of *Oak* and *Haſel*, which they cleave and hack, and then *dry* in the *Oven* or *Chimney*, but have certainly ſome unctuous and inflammable Matter, in which they afterwards dip it; but thus they do in *Biſcay*, as I am credibly informed.

11. The *Bodies* of theſe being cut, or burnt down to the Ground, will emit frequent *Suckers* from the *Roots*; but ſo will neither the *Pine* nor *Fir*, nor indeed care to be topped: But the *Fir* may be propagated of *Layers* and *Cuttings*, which I divulge as a conſiderable Secret that has been eſſayed with Succeſs.

12. That all theſe, eſpecially the *Fir* and *Pine*, will proſper well with us, is more than probable, becauſe it is a Kind of *Demonſtration*, that they did heretofore grow plentifully in *Cumberland*, *Cheſhire*, *Stafford* and *Lancaſhire*, if the Multitudes of theſe *Trees* to this Day found entire, and *buried* under the *Earth*, though ſuppoſed to have been

been o'erthrown and covered ſo ever ſince the univerſal *Deluge*, be indeed of this *Species*. Dr. *Plot* ſpeaks of a *Fir-tree* in *Staffordſhire*, of one hundred and fifty Foot high, which ſome think of *ſpontaneous* Growth; beſides ſeveral more ſo irregularly ſtanding, as ſhews them to be *Natives*: But to put this at laſt out of Controverſy, ſee the *Extract* of Mr. *de la Prim*'s Letter to the *Royal Society*, *Tranſactions*, Number 277, and the old Map of *Crout*, and of the yet (or lately) remaining *Firs*, growing about *Hatfield* in the Commons, flouriſhing from the Shrubs and Stubs of thoſe *Trees*, to which I refer the *Reader*. As for buried Trees of this Sort, the late Dr. *Merrett*, in his *Pinax*, mentions ſeveral Places of this Nation, where *ſubterraneous Trees* are found; as, namely, in *Cornwal*, *ad finem terræ*, *in agris Flints*; in *Pembrokeſhire* towards the Shore, where they ſo abound, *ut totum littus* (ſays the Doctor) *tanquam Silva cædua apparet*; in *Cheſhire* alſo (as we ſaid) *Cumberland* and *Angleſey*, and ſeveral of our *Euro-boreal* Tracts, and are called *Noah*'s *Ark*. By *Chatneſſe* in *Lancaſhire* (ſays *Cambden*) the low *moſſie* Ground was no very long Time ſince, carried away by an impetuous *Flood*, and in that Place now lies a low irriguous *Vale*, where many proſtrate *Trees* have been digged out: And from another I receive, that in the *Moors* of *Somerſetſhire* (towards *Bridgewater*) ſome Lengths of Paſture growing much withered, and parched more than other Places of the ſame Ground, in a great Drowth, it was obſerved to bear the Length and Shape (in groſs) of *Trees*; they digged, and found in the Spot *Oaks* as black as *Ebony*, and have been from hence inſtructed, to take up many hundreds of the ſame Kind: In a *fenny* Tract of the *Iſles* of *Axholme* (lying part in *Lincolnſhire*, and part in *Yorkſhire*) have been found *Oaks* five Yards in Compaſs, and fifteen in Length, ſome of them erect, and ſtanding as they grew, in firm Earth below the *Moors*, with abundance of *Fir*, which lie more ſtooping than the *Oak*, ſome being thirty-ſix Yards long, beſides the Tops: And ſo great is the Store of theſe *ſubterraneans*, as the Inhabitants have for divers Years carried away above two thouſand *Cart-loads* yearly: See *Dugdale*'s *Hiſtory* of *Draining*. This might be of good uſe for the like Detections in *Eſſex*, *Lincolnſhire*, and Places either low ſituate, or adjacent to the Sea; alſo at *Binfield* Heath in *Kent*, *&c.* Theſe *Trees* were (ſome think) carried away in Times paſt, by ſome Accident of *Inundation*, or by *Waters* undermining the Ground, till their own *Weight*, and the *Winds* bowed them down, and overwhelmed them in the *Mud*: For 'tis obſerved, that theſe *Trees* are no where found ſo frequently, as in *boggy* Places; but that the burning of theſe *Trees* ſo very bright, ſhould be an Argument they were *Fir*, is not neceſſary, ſince the *bituminous* Quality of ſuch *Earth*, may have imparted it to them; and *Cambden* denies them to be *Fir-trees*; ſuggeſting the *Query*; whether there may not *poſſibly* grow *Trees* even under the Ground, as well as other Things? *Theophraſtus* indeed, Lib. iv. Cap. viii. ſpeaks of whole *Woods*; *Bays* and *Olives*, bearing *Fruit*; and that of ſome *Oaks* bearing *Acorns*, and thoſe even under the Sea; which was ſo full of *Plants* and other *Trees*, as ('tis ſaid) *Alexander*'s Forces ſailing to the *Indies*, were much hindered by them. There are in *Cumberland*, on the Sea-ſhore, *Trees* ſometimes diſcovered at *Low-water*, and at other Times, that lie buried in the Sand; and in other *moſſie* Places of that *County*, 'tis reported, the People frequently dig up the Bodies of vaſt *Trees* with-

Subterranean Trees.

 out.

 out *Boughs*, and that by Direction of the *Dew* alone in *Summer*; for they obſerve it never lies upon that Part under which thoſe *Trees* are interred. Theſe Particulars I find noted by the ingenious *Author* of the *Britannia Baconica*. How vaſt a *Foreſt*, and what goodly *Trees* were once ſtanding in *Holland*, and thoſe *Low-countries*, till about the Year 860, that an *Hurricane* obſtructing the Mouth of the *Rhine* near *Catwic*, made that horrid Devaſtation good *Authors* mention; and they do this Day find monſtrous Bodies and Branches (nay, with the very *Nuts*, moſt intire) of proſtrate and buried *Trees*, in the *Veene*, eſpecially towards the *South*, and at the Bottom of the Waters: Alſo near *Bruges* in *Flanders*, whole *Woods* have been found twenty Ells deep, in which the *Trunks*, *Boughs* and *Leaves* do ſo exactly appear, as to diſtinguiſh their ſeveral Species, with the Series of their *Leaves* yearly falling; of which ſee *Boetius de Boot*.

Dr. *Plot*, in his *Nat. Hiſt.* of *Oxford* and *Stafford-ſhires* mentions divers *ſubterraneous Oaks*, black as *Ebony*, and of *mineral* Subſtance for Hardneſs (See *Cap.* iii. *Oak*) quite through the whole Subſtance of the *Timber*, cauſed (as he ſuppoſes, and learnedly evinces) a *vitriolic* Humour of the *Earth*, of Affinity to the Nature of the *Ink-galls*, which that kind of *Tree* produces: Of theſe he ſpeaks of ſome found ſunk under the Ground, in an upright and growing Poſture, to the *perpendicular* Depth of ſixty *Foot*; of which one was three *Foot Diameter*, of an Hardneſs emulating the politeſt *Ebony*: But theſe Trees had none of them their *Roots*, but were found plainly to have been cut off by the *Kerf*. There were great Store of *Haſel-nuts*, whoſe Shells were as ſound as ever, but no *Kernel* within. It is there the inquiſitive *Author* gives you his Conjecture, how theſe deep *Interments* happen'd; namely, by our *Anceſtors* (many Ages ſince) clearing the Ground for *Tillage*, and when *Wood* was not worth converting to other Uſes, digging *Trenches* by the Sides of many Trees, in which they buried ſome; and others they flung into *Quagmires* and *Lakes*, to make Room for more profitable *Agriculture*: But I refer you to the *Chapter*. In the mean time, concerning this *moſſie Wood* (as they uſually term it, becauſe, for the moſt Part, dug up in *moſſie* and *moory Bogs* where they cut for *Turf*) it is highly probable (with the Learned Mr. *Ray*) that theſe Places were many Ages ſince, Part of *firm Land* covered with *Wood*, afterwards undermined and overwhelmed by the Violence of the *Sea*, and ſo continuing ſubmerg'd, till the *Rivers* brought down *Earth* and *Mud* enough to cover the Trees, filling up the Shallows, and reſtoring them to the *Terra-firma* again, which he illuſtrates from the like Accident upon the Coaſt of *Suffolk*, about *Dunwich*, where the Sea does at this Day, and hath for many *Years* paſt, much incroach'd upon the Land, undermining and ſubverting by Degrees, a great deal of high Ground; ſo as by antient Writings it appears, a whole *Wood* of more than a Mile and half, at preſent is ſo far within the Sea. Now if in ſucceeding Ages (as probable it is enough) the *Sea* ſhall by Degrees be filled up, either by its own working, or by *Earth* brought down by *Land-floods*, ſtill ſubſiding to the Bottom, and ſurmounting the Tops of theſe *Trees*, and ſo the Space again added to the *firm Land*; the *Men* that ſhall then live in thoſe Parts, will, it's likely, dig up theſe *Trees*, and as much wonder how they came there, as we do at preſent thoſe we have been ſpeaking of.

In

In the mean Time, to put an End to the various Conjectures, concerning the Cauſes of ſo many *Trees* being found *ſubmerg'd*, for the moſt Part attributed to the Deſtruction made by the *Noatick Inundation*; after all has been ſaid of what was found in the *Level* of *Hatfield* (drain'd at the never to be forgotten Charge and Induſtry of Sir *Cornelius Vermuiden*) I think there will need no more Enquiry: For there was diſcover'd *Trees* not only of *Fir* and *Pitch*, but of very goodly *Oaks*, even to the Length of one hundred *Foot*, which were ſold at fifteen *Pounds* the Tree, black and hard as *Ebony*; all their *Roots* remaining in the Soil, and their natural Poſture, with their Bodies proſtrate by them, pointing for the moſt Part *North-Eaſt*: And of ſuch there ſeem'd to be *Millions*, of all the uſual *Species* natural to this Country, ſound and firm *Aſh* only excepted, which were become ſo rotten and ſoft, as to be frequently cut through with the *Spade* only; whereas *Willows*, and other tender *Woods*, continu'd very ſound and entire: Many of theſe *ſubterranean Trees* of all Sorts, were found to have been cut and burnt down, ſquar'd and converted for ſeveral Uſes, into *Boards*, *Pales*, *Stakes*, *Piles*, *Bars*, &c. Some *Trees* half riven, with the *Wedges* ſticking in them; broken *Axe-heads* in Shape of *ſacrificing Inſtruments*, and frequently ſeveral *Coins* of the *Emperor Veſpaſian*, &c. There was among others, one prodigious *Oak* of one hundred and twenty *Foot* in Length, and twelve in Diameter, ten Foot in the Middle, and ſix at the ſmall End; ſo, as by Computation, this Monſter muſt have been a great deal longer, and for this *Tree* was offered twenty *Pounds*. The *Truth* and *Hiſtory* of all this is ſo perfectly deſcrib'd by Mr. *Alan. de la Pryme* (inſerted among the *Tranſactions* of the *Royal Society*) that there needs no more to be ſaid of it to *evince*, that not only *here*, but in other Places, where ſuch *Trees* are found in the like Circumſtances, that it has been the Work and Effects of vaſt *Armies* of the *Romans*, when finding they could not with all their Force ſubdue the *barbarous* Inhabitants, by reaſon of their continual iſſuing out of thoſe intricate *Fortreſſes* and Impediments, they cauſed whole *Foreſts* to be cut down by their *Legions* and Soldiers, whom they never ſuffer'd to remain *idle* during their *Winter Quarters*, but were continually exerciſed in ſuch publick and uſeful Works, as required Multitude of Hands; by which *Diſcipline* they became hardy, active, and leſs at Leiſure to mutiny, or corrupt one another. I do not affirm that this anſwers all *ſubmerged Trees*, but of very many imputed to other Cauſes.

But we ſhall enquire farther concerning theſe *ſubterranean* Productions anon, and whether the *Earth*, as well as the *Water*, have not the Virtue of ſtrange *Tranſmutations*. Theſe *Trees* are found in *Moors*, by poking with *Staves* of three or four Foot length, ſhod with *Iron*.

13. In *Scotland* many ſubmerged *Oaks* are found near the River *Neſſe*; and (as we noted) there is a moſt beautiful Sort of *Fir*, or rather *Pine*, bearing ſmall ſharp *Cones* (ſome think it the *Spaniſh Pinaſter*) growing upon the *Mountains*; of which, from the late *Marquis of Argyle*, I had ſent me ſome Seeds, which I have ſown with tolerable Succeſs; and I prefer them before any other, becauſe they grow both very erect, and fixing themſelves ſtoutly, need little, or no Support. Near *Loughbrun*, 'twixt the *Lough* and an *Hill*, they grow in ſuch Quantity, that from the ſpontaneous Fall, Ruin and Decay of the Trees lying croſs one another to a Man's Height, partly covered with *Moſſe*,

and

BOOK II. and partly *Earth* and *Graſs* (which rots, fills up, and grows again) a conſiderable *Hill* has, in Proceſs of Time, been raiſed to almoſt their very Tops, which being an Accident of ſingular *Remark*, I thought fit to mention. Both *Fir* and *Pine* (ſociable Trees) planted pretty near together (ſhread and clipt at proper Seaſons) make ſtately, noble, and very beautiful *Skreens* and Fences to protect *Orange*, *Myrtle* and other curious *Greens*, from the ſcorching of the *Sun*, and ruffling *Winds*, preferrable to Walls: See how to be planted and cultivated with the Dimenſions of a *Skreen*, in the *Rules* for the Defence of *Gardens*, annext to *de la Quintin*, *Num* XV. by Mr. *London* and Mr. *Wiſe*. In the mean time, none of theſe Sorts are to be mingled in taller *Woods* or *Copſes*, in which they ſtarve one another, and loſe their Beauty. And now thoſe who would ſee what *Scotland* produces (of innumerable Trees of this kind) ſhould conſult the Learned Sir *Rob. Sibald.*

USES. 14. For the many, and almoſt univerſal Uſe of theſe *Trees*, both *Sea* and *Land* will plead,

[a] *The uſeful* Pine *for* Ships ——

Hence *Papinius* 6. *Thebaid.* calls it *audax abies.* They make our beſt *Maſt*, *Sheathing*, *Scaffold-poles*, &c. heretofore the whole *Veſſel*: *It is pretty* (ſaith *Pliny*) *to conſider, that thoſe Trees which are ſo much ſought after for* Shipping, *ſhould moſt delight in the higheſt of* Mountains, *as if it fled from the* Sea *on purpoſe, and were afraid to deſcend into the* Waters. With *Fir* we likewiſe make all *inteſtine Works*, as *Wainſcot*, *Floors*, *Pales*, *Balks*, *Laths*, *Boxes*, *Bellies* for all *Muſical Inſtruments* in general, nay the *Ribs* and *Sides* of that enormous *Stratagem*, the ſo famous *Trojan* * *Horſe*, may be thought to be built of this *Material*; and if the *Poet* miſtake not,

* *Macrob.* Sat. 16. cap. 9.

[b] ——*The Ribs with* Deal *they fit*:

There being no Material more obedient and ready to bend for ſuch Works.

In *Holland* they receive their beſt *Maſts* out of *Norway*, and even as far as *Muſcovy*, which are beſt eſteemed (as conſiſting of long *Fibres*, without *Knots*) but *Deal-boards* from the *firſt*; and though *Fir* rots quickly in *Salt-water*, it does not ſo ſoon periſh in *freſh*; nor do they yet refuſe it in *Merchant-ſhips*, eſpecially the upper Parts of them, becauſe of its Lightneſs: The true *Pine* was ever highly commended by the *Antients* for naval *Architecture*, as not ſo eaſily decaying; and we read that *Trajan* cauſed *Veſſels* to be built both of the *true* and *ſpurious* Kind, well *pitch'd*, and over-laid with *Lead*, which perhaps might hint our modern *Sheathing* with that *Metal* at preſent. *Fir* is exceeding ſmooth to *poliſh* on, and therefore does well under *Gilding*-work, and takes *Black* equal with the *Pear-tree*: Both *Fir*, and eſpecially *Pine*, ſucceed well in *Carving*, as for *Capitals*, *Feſtoons*, nay *Statues*, eſpecially being *gilded*, becauſe of the Eaſineſs of the *Grain* to work, and take the *Tool* every way; and he that ſhall examine it nearly, will find that famous *Image* of the *B. Virgin* at *Loretto* (reported to be carved by the Hands of St. *Luke*) to be

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a ——— ——dant utile Lignum
Navigiis Pinos——— —— *Georg.* ii.

b ——— ——Sectáque intexunt *Abiete* coſtas. *Æn.* ii.

made

made of *Fir*, as the Grain eaſily diſcovers it : The *Torulus* (as *Vitruvius* terms it) and *Heart* of *Deal*, kept dry, rejecting the *Albumen* and *White*, is everlaſting ; nor does there any *Wood* ſo well agree with the *Glew*, as it, or is ſo eaſy to be wrought : It is alſo excellent for *Beams*, and other *Timber-work* in *Houſes*, being both light, and exceedingly ſtrong, and therefore of very good Uſe for *Bars* and *Bolts* of *Doors*, as well as for *Doors* themſelves, and for the Beams of *Coaches* ; a Board of an Inch and half thick, will carry the *Body* of a *Coach* with great Eaſe, by Reaſon of a natural *Spring* which it has, not eaſily violated. You ſhall find, that of old they made *Carts* and other *Carriages* of it ; and for *Piles* to ſuperſtruct on in *boggy Grounds* ; moſt of *Venice* and *Amſterdam* is built upon them, with ſo exceſſive Charge, as ſome report, the *Foundations* of their *Houſes* coſt as much as what is erected on them ; there being driven in no *fewer* than thirteen Thouſand ſix Hundred and Fifty-nine great *Maſts* of this *Timber*, under the new *Stadt-houſe* of *Amſterdam*. For *Scaffolding* alſo there is none comparable to it ; and I am ſure we find it an extraordinary Saver of *Oak*, where it may be had at reaſonable *Price*. I will not complain what an incredible Maſs of ready *Money* is yearly exported into the *Northern Countries* for this ſole Commodity, which might all be ſaved, were we *induſtrious* at *Home*, or could have them out of *Virginia*, there being no Country in the whole World ſtor'd with *better* ; beſides, another Sort of *Wood*, which they call *Cypreſs*, much exceeding either *Fir* or *Pine* for this Purpoſe, being as tough and ſpringy as *Yew*, and bending to Admiration ; it is alſo lighter than either, and everlaſting in *Wet* or *Dry* ; ſo as I much wonder that we enquire no more after it : In a Word, not only here and there an *Houſe*, but whole *Towns* and great *Cities* are and have been built of *Fir* only ; nor that alone in the *North*, as *Moſco*, *&c.* where the very Streets are *paved* with it (the *Bodies* of the Trees lying proſtrate one by one in Manner of a *Raft*) but the renowned *City* of *Conſtantinople* ; and nearer Home *Tholouſe* in *France*, was, within little more than an hundred Years, moſt of *Fir*, which is now wholly *Marble* and *Brick*, after Eight hundred Houſes had been burnt, as it often chances at *Conſtantinople* ; but where no Accident even of this devouring Nature will at all move them to re-edifie with more laſting Materials. To conclude with the Uſes of *Fir*, we have moſt of our *Pot-aſhes* of this *Wood*, together with *Torch*, or *Funebral-ſtaves* ; nay, and of Old, *Spears* of it, if we may credit *Virgil*'s *Amazonian* Combat :

[a] ——— *She preſt*
A long Fir-*Spear through his expoſed Breaſt.*

Laſtly, the very *Chips* or *Shavings* of *Deal-boards*, are of other Uſe than to kindle *Fires* alone. *Thomas Bartholinus* in his *Medicina Danorum*, *Diſſert.* vii, *&c.* where he diſclaims the Uſe of *Hops* in *Beer* (as pernicious and malignant, and from ſeveral Inſtances how apt it is to produce and uſher in *Infections*, nay *Plagues*, *&c.*) would ſubſtitute in its Place the *Shavings* of *Deal-boards*, as he affirms, to give a grateful *Odour* to the *Drink* ; and how ſoveraign thoſe *reſinous Woods*,

[a] ——— Cujus apertum
Adverſi longâ tranſverberat abiete pectus.
Æn. xi.

Book II. the Tops of *Fir* and *Pines*, are againſt the *Scorbut*, *Gravel* in the *Kidneys*, &c. we generally find: It is in the ſame *Chapter*, that he commends alſo *Wormwood*, *Marrubium*, *Chamelæagnum*, *Sage*, *Tamariſc*, and almoſt any Thing, rather than *Hops*. The *Bark* of the *Pine* heals *Ulcers*; and the inner *Rind* cut ſmall, *contuſed*, and boiled in Store of *Water*, is an excellent Remedy for Burns and Scalds, waſhing the *Sore* with the *Decoction*, and applying the ſoftned *Bark*: It is alſo ſoveraign againſt *frozen* and benumb'd *Limbs*: The diſtilled *Water* of the green *Cones* takes away the *Wrinkles* of the *Face*, dipping Cloths therein, and laying them on it, becomes a *Coſmetic* not to be deſpiſed. The *Pine*, or *Picea*, buried in the Earth, never decay: From the latter *Trauſudes* a very bright and pellucid *Gum*; hence we have likewiſe *Roſin*: alſo of the *Pine* are made *Boxes* and *Barrels* for *dry Goods*; yea, and it is cloven into (*Scandulæ*) *Shingles* for the covering of Houſes in ſome Places; alſo *Hoops* for *Wine-veſſels*, eſpecially of the eaſily flexible *Wild-pine*; not to forget the *Kernels* (this *Tree* being always furniſhed with *Cones*, ſome *ripe*, others *green*) of ſuch admirable Uſe in *Emulſions*; and for *Tooth-pickers*, even the very *Leaves* are commended: In ſum, they are *Plantations* which exceedingly improve the *Air*, by their *odoriferous* and *balſamical* Emiſſions, and for Ornament, create a *perpertual Spring* where they are plentifully propagated. And if it could be proved, that the *Almugim-Trees*, recorded * 1 *Reg.* 11, 12. (whereof *Pillars* for that famous *Temple*, and the *royal Palace*, *Harps* and *Pſalteries*, &c. were made) were of this Sort of *Wood* (as ſome doubt not to aſſert) we ſhould eſteem it at another Rate; yet we know *Joſephus* affirms they were a kind of *Pine-tree*, though ſomewhat reſembling the *Fig-tree Wood* to appearance, as of a moſt luſtrous *Candor*. In the 2 *Chron.* ii. 8. there is mention of *Almug-trees* to grow in *Lebanon*; and if ſo, methinks it ſhould rather be (as *Buxtorf* thinks) a kind of *Cedar* (yet we find *Fir* alſo in the ſame Period) for we have ſeen a *whiter* Sort of it, even very *White* as well as *Red*; though ſome affirm it to be but the *Sap* of it (ſo our *Cabinet-makers* call it) I ſay, there were both *Fir* and *Pine-trees* alſo growing upon thoſe *Mountains*; and the learned *Meibomius* (in that curious Treatiſe of his *De Fabrica Triremium*) ſhews that there were ſuch Trees brought out of *India*, or *Ophir*. In the mean Time, Mr. *Purchas* informs us, that Dr. *Dee* writ a laborious *Treatiſe* almoſt wholly of this *Subject* (but I could never have the good Hap to ſee it) wherein, as *Commiſſioner* for *Solomon*'s *Timber*, and like a learned *Architect* and *Planter*, he has ſummoned a *Jury* of *twelve* Sorts of *Trees*; namely, 1. the *Fir*, 2. *Box*, 3. *Cedar*, 4. *Cypreſs*, 5. *Ebony*, 6. *Aſh*, 7. *Juniper*, 8. *Larch*, 9. *Olive*, 10. *Pine*, 11. *Oak*, and 12. *Sandal-trees*, to examine which of them were this *Almugim*, and at laſt ſeems to concur with *Joſephus* in Favour of *Pine* or *Fir*; who poſſibly, from ſome antient *Record* or *Fragment* of the *Wood* itſelf, might learn ſomething of it; and 'tis believed, that it was ſome Material both *odoriferous* to the *Scent*, and *beautiful* to the *Eye*, and of fitteſt Temper to refract *Sounds*; beſides its Serviceableneſs for *Building*; all which Properties are in the beſt Sort of *Pine*, or *Thyina*, as *Pliny* calls it; or perhaps ſome other rare *Wood*, of which the *Eaſtern Indies* are doubtleſs the beſt provided; and yet I find, that thoſe vaſt *Beams* which ſuſtain'd the Roof of St. *Peter*'s Church at *Rome*, laid (as reported) by *Conſtantine* the *Great*, were made

* *Where the* LXX *calls it* ἀπελεκητα, *non dedolata*; others *ligna undulata*. See *Ezek.* xxvii. 5, 6.

made of the *Pitch-tree*, and have laſted from *Anno* 336, down to our Days, above one Thouſand three Hundred Years. CHAP. III.

13. But now whilſt I am reciting the *Uſes* of theſe beneficial Trees, Mr. *Winthorp* preſents the *Royal Society* with the *Proceſs* of making the *Tar* and *Pitch* in *New-England*, which we thus abbreviate. *Tar* is made out of that Sort of *Pine-tree*, from which naturally *Turpentine* extilleth; and which at its firſt flowing out, is liquid and clear; but being hardened by the *Air*, either on the *Tree*, or wherever it falls, is not much unlike the the *Burgundy Pitch*; and we call them *Pitch-pines* out of which this *gummy* Subſtance tranſudes: They grow upon the moſt *barren Plains*, on *Rocks* alſo, and *Hills* riſing amongſt thoſe *Plains*, where ſeveral are found blown down, and have lain ſo many *Ages*, as that the whole Bodies, Branches and Roots of the Trees being periſhed, ſome certain *Knots* only of the Boughs have been left remaining intire (theſe *Knots* are that Part where the *Bough* is joined to the *Body* of the *Tree*) lying at the ſame Diſtance and Poſture as they grew upon the *Tree* for its whole Length. The Bodies of ſome of theſe *Trees* are not corrupted through Age, but quite conſumed, and reduced to Aſhes, by the annual *Burnings* of the *Indians*, when they ſet ther Grounds on *Fire*; which yet has, it ſeems, no Power over theſe hard *Knots*, beyond a black Scorching; although being laid on Heaps, they are apt enough to burn. It is of theſe *Knots* they make their *Tar* in *New-England*, and the *Country* adjacent, whilſt they are well impregnated with that *terebinthine* and *reſinous* Matter, which, like a *Balſam*, preſerves them ſo long from *Putrefaction*. The reſt of the *Tree* does indeed contain the like *terebinthine Sap*, as appears (upon any ſlight Inciſion of *Bark* on the Stem or Boughs) by a ſmall cryſtalline Pearl, which will ſweat out; but *this*, for being more watery and undigeſted, by Reaſon of the *Poroſity* of the *Wood*, which expoſes it to the Impreſſions of the *Air* and *Wet*, renders the Tree more obnoxious, eſpecially if it lie proſtrate with the *Bark* on, which is a Receptacle for a certain *intercutaneous* Worm, that accelerates its Decay. They are the *Knots* then alone, which the *Tar-makers* amaſs in *Heaps*, carrying them in *Carts* to ſome convenient Place not far off, where, finding *Clay* or *Loam* fit for their Turn, they lay an *Hearth* of ſuch ordinary Stone as they have at Hand: This they build to ſuch an Height from the Level of the Ground, that a *Veſſel* may ſtand a little lower than the *Hearth*, to receive the *Tar* as it runs out: But firſt the *Hearth* is made wide, according to the Quantity of *Knots* to be ſet at once, and that with a very ſmooth *Floor* of *Clay*, yet ſomewhat deſcending, or dripping from the extream Parts to the *Middle*, and *thence* towards one of the *Sides*, where a *Gullet* is left for the *Tar* to run out at. The *Hearth* thus finiſhed, they pile the *Knots* one upon another, after the very ſame Manner as our *Colliers* do their *Wood* for *Charcoal*, and of a Height proportionable to the Breadth of the *Hearth*; and then cover them over with a Coat of *Loam*, or *Clay* (which is beſt) or in Defect of thoſe, with the beſt and moſt tenacious *Earth* the Place will afford; leaving only a ſmall *Spiracle* at the Top, whereat to put the *Fire* in; and making ſome little *Holes* round about at ſeveral Heights, for the Admiſſion of ſo much *Air* as is requiſite to keep it burning, and to regulate the *Fire*, by opening and ſtopping them at Pleaſure. The *Proceſs* is almoſt the ſame with that of making *Charcoal*, as will appear in due Place; for, when it is well

See *Plin. Nat. Hiſt.* Lib. xvi. Cap. xi. or rather *Theophraſtus Hiſt.* Lib. ix. Cap. ii, iii. & Lib. xiv. Cap. xx. Lib. xxiii. Cap. i. Lib. xxiv. Cap. vi.

well on *Fire*, that middle *Hole* is alſo ſtopped, and the reſt of the *Regiſters* ſo governed, as the *Knots* may keep burning, and not be ſuffocated with too much *Smoak*; whilſt all being now thorough-heated, the *Tar* runs down to the *Hearth*, together with ſome of the more watery *Sap*, which haſtning from all *Parts* towards the *Middle*, is conveyed by the forementioned *Gutter* into the *Barrel* or *Veſſel* placed to receive it: Thus, the whole *Art* of *Tar-making* is no other than a kind of rude Diſtillation *per deſcenſum*, and might therefore be as well done in *Furnaces* of large Capacity, were it worth the Expence. When the *Tar* is now all melted out and run, they ſtop up all the *Vents* very cloſe; and afterwards find the *Knots* made into excellent *Charcoal*, preferred by the *Smiths* before any other whatſoever which is made of *Wood*, and nothing ſo apt to burn *out* when their *Blaſt* ceaſeth; neither do they *ſparkle* in the *Fire*, as many other Sorts of *Coal* do; ſo as, in Defect of *Sea-coal*, they make Choice of *this*, as beſt for their Uſe, and give greater *Prices* for it. Of theſe *Knots* likewiſe do the *Planters* ſplit out ſmall *Slivers*, about the Thickneſs of one's *Finger*, or ſomewhat thinner, which ſerve them to burn inſtead of *Candles*, giving a very good Light. This they call *Candle-wood*, and it is in much Uſe both in *New-England*, *Virginia*, and amongſt the *Dutch Planters* in their *Villages*; but for that it is ſomething offenſive, by Reaſon of the much fuliginous *Smoak* which comes from it, they commonly burn it in the *Chimney-corner*, upon a flat *Stone* or *Iron*; except, occaſionally, they carry a ſingle *Stick* in their Hand, as there is need of Light to go about the Houſe. It muſt not be conceived, by what we have mentioned in the former Deſcription of the *Knots*, that they are only to be ſeparated from the *Bodies* of the *Trees* by devouring *Time*, or that they are the only *Materials* out of which *Tar* can be extracted: For there are in theſe *Tracts* Millions of *Trees* which abound with the ſame Sort of *Knots*, and full of *Turpentine* fit to make *Tar*: But the Labour of *felling* theſe *Trees*, and of *cutting* out their *Knots*, would far exceed the Value of the *Tar*, eſpecially in *Countries* where *Work-men* are ſo very dear: But thoſe *Knots* above-mentioned are provided to Hand, without any other Labour than the gathering only. There are ſometimes found of thoſe Sort of *Pine-trees*, the loweſt Part of whoſe Stems towards the *Root* is as full of *Turpentine* as the *Knots*; and of theſe alſo may *Tar* be made: But ſuch *Trees* being rarely found, are commonly preſerved to ſplit into *Candle-wood*; becauſe they will be eaſily *riven* out into any Lengths and Scantlings deſired, much better than the *Knots*. There be, who pretend an *Art* of as fully *impregnating* the *Body* of any living *Pine-tree*, for ſix or eight Foot high; and ſome have reported that ſuch an *Art* is practiſed in *Norway*: But upon ſeveral *Experiments*, by *girdling* the *Tree* (as they call it) and cutting ſome of the *Bark* round, and a little *into* the *Wood* of the *Tree*, ſix or eight Foot diſtant from the Ground, it has yet never ſucceeded; whether the juſt *Seaſon* of the Year were not obſerved, or what elſe omitted, were worth the *Diſquiſition*; if at leaſt there be any ſuch *Secret* amongſt the *Norwegians*, *Swedes*, or any other *Nation*. Of *Tar*, by boiling it to a ſufficient *Height*, is *Pitch* made: And in ſome Places where *Roſin* is plentiful, a fit Proportion of *that* may be diſſolved in the *Tar* whilſt it is boiling, and this *Mixture* is ſooneſt converted to *Pitch*; but it is of ſomewhat a differing *Kind* from that which is made of *Tar* only,

only, without other Compoſition. There is a Way which ſome *Ship-Carpenters* in thoſe Countries have uſed, to bring their *Tar* into *Pitch* for any ſudden Uſe, by making the *Tar* ſo very hot in an *Iron-Kettle*, that it will eaſily take *fire*, which when *blazing*, and ſet in an *airy* Place, they let burn ſo long, till by taking out ſome ſmall Quantity for trial, being *cold*, it appears of a ſufficient *Conſiſtence:* Then by covering the *Kettle* cloſe, the *Fire* is extinguiſhed, and the *Pitch* is made without more Ceremony. There is a *Proceſs* of making *Roſin* alſo, out of the ſame *Knots*, by ſplitting them out into thin Pieces, and then boiling them in *Water*, which will educe all the *reſinous* Matter, and gather it into a *Body*, which (when cold) will harden into pure *Roſin*. It is more over to be underſtood, that the *Fir* and moſt *coniferous* Trees, yield the ſame *Concretes*, *Lachrymæ*, *Turpentines*, and there is a *Fir* which exſtils a *Gum* not unlike the *Balm* of *Gilead*, and a Sort of *Thus*; *Roſins*, *Hard*, *naval Stone*, *liquid Pitch*, and *Tar* for Remedies againſt the *Cough*, *Arthritic* and *Pulmonic* Affections, are well known, and the *Chirurgion* uſes them in *Plaiſters* alſo; and, in a word, for *mechanic* and other innumerable *Uſes*; and from the burning and fuliginous Vapour of theſe, eſpecially the *Roſin*, we have our *Lamp* and *Printers* Black, *&c.* I am perſwaded the *Pine*, *Pitch* and *Fir-trees* in *Scotland*, might yield his Majeſty Plenty of excellent *Tar*, were ſome induſtrious Perſon employed about the Work; ſo as I wonder it has been ſo long neglected. But there is another *Proceſs*, not much unlike the former, which is given us by the preſent *Archbiſhop* of *Samos*, *Joſeph Georgirenes*, in his Deſcription of *that*, and other *Iſlands* of the *Ægæan*.

Their Way of making *Pitch* (ſays he) is thus: They take *Sapines*, that is, that Part of the *Fir*, ſo far at it hath no *Knots*; and ſhaving away the extream Parts, leave only that which is neareſt to the Middle, and the *Pith:* That which remains, they call *Dadi* (from the old *Greek* Word Δᾴδες, whence the *Latin*, *Tæda*): Theſe they ſplit into ſmall Pieces, and laying them on a *Furnace*, put *Fire* to the upper Part, till they are all burnt, the Liquor in the mean Time running from the *Wood*, and let out from the bottom of the *Furnace* into a Hole made in the Ground, where it continues like *Oil:* Then they put *Fire* to it, and ſtir it about till it thicken, and has a Conſiſtence: After this, putting out the *Fire*, they caſt *Chalk* upon it, and draw it out with a *Veſſel*, and lay it in little Places cut out of the Ground, where it receives both its Form, and a firmer Body for eaſie Tranſportation: Thus far the *Archbiſhop*; but it is not ſo inſtructive and methodical as what we have deſcribed above.

Other *Proceſſes* for the extracting of theſe Subſtances, may be ſeen in Mr. *Ray*'s *Hiſtory* of *Plants*, already mentioned, Lib. xxix. Cap. i. And as to *Pitch* and *Tar*, how they make it near *Marſeilles* in *France*, from the *Pines* growing about that City, ſee *Philoſophical Tranſactions*, Number 243. p. 291. *Ann.* 1696. very well worthy the tranſcribing, if what is mentioned in this *Chapter* were at all defective.

I had in the former Editions of *Silva*, placed the *Larix* among the *Trees* which ſhed their Leaves in *Winter* (as indeed does this) but not before there is an almoſt immediate Supply of freſh; and may therefore, both for its Similitude, Stature, and Productions, challenge Rank among the *Coniferous:* We raiſe it of Seeds, and grows ſpontaneouſly in *Stiria*, *Carinthia*, and other *Alpine* Countries: The Change of the

Colour of the old Leaf, made an ignorant *Gardener* of mine eradicate what I had brought up with much Care as dead; let this therefore be a Warning: The Leaves are thin, pretty long and briſtly; the *Cones* ſmall, grow irregular, as do the Branches, like the *Cypreſs*, a very beautiful *Tree*, the ponderous Branches bending a little, which makes it differ from the *Libanus Cedar*, to which ſome would have it allied, nor are any found in *Syria*. Of the deep wounded *Bark*, *exſudes* the pureſt of our *Shop-turpentine* (at leaſt as reputed) as alſo the Drug *Agaric*: That it flouriſhes with us, a Tree of good Stature (not long ſince to be ſeen about *Chelmsford* in *Eſſex*) ſufficiently reproaches our not cultivating ſo uſeful a *Material* for many Purpoſes, where laſting and ſubſtantial Timber is required: For we read of *Beams* of no leſs than an hundred and twenty *Foot* in Length, made out of this goodly Tree, which is of ſo ſtrange a Compoſition, that 'twill hardly burn; whence *Mantuan*, *Et robuſta* Larix *igni impenetrabile lignum:* For ſo *Cæſar* found it in a Caſtle he beſieged, built of it; (the Story is recited at large by *Vitruvius*, Lib. ii. Cap. ix.) but ſee what *Philander* ſays upon the Place, on his own Experience: Yet the *Coals* thereof were held far better than any other, for the melting of *Iron*, and the *Lock-ſmith*; and to ſay the Truth, we find they burn it frequently as *common Fuel* in the *Valtoline*, if at leaſt it be the true *Larix*, which they now call *Melere*. There is abundance of this *Larch* Timber in the *Buildings* at *Venice*, eſpecially about the *Palaces* in *Piazza San Marco*, where I remember *Scamozzi* ſays, he himſelf uſed much of it, and infinitely commends it. Nor did they only uſe it in *Houſes*, but in *Naval Architecture* alſo: The Ship mentioned by *Witſen* (a late *Dutch* Writer of that uſeful *Art*) to have been found not long ſince in the *Numidian* Sea, twelve Fathoms under Water, being chiefly built of this *Timber* and *Cypreſs*, both reduced to that *Induration* and Hardneſs, as greatly to reſiſt the *Fire*, and the ſharpeſt *Tool*; nor was any thing periſhed of it, though it had lain above a *thouſand* and *four hundred* Years ſubmerg'd: The *Decks* were covered with Linnen, and Plates of Lead, fixed with Nails gilt, and the entire Ship (which contained thirty Foot in Length) ſo ſtanch, as not one drop of *Water* had ſoaked into any Room. *Tiberius*, we find, built that famous *Bridge* to his *Naumachia* with this *Wood*, and it ſeems to excel for *Beams*, *Doors*, *Windows*, and *Maſts* of Ships, reſiſts the *Worm:* Being driven into the Ground, it is almoſt *petrified*, and will ſupport an incredible Weight; which (and for its Property of long reſiſting *Fire*) makes *Vitruvius* wiſh, they had greater Plenty of it at *Rome* to make *Goiſts* of, where the *Forum* of *Auguſtus* was (it ſeems) built of it, and divers *Bridges* by *Tiberius*; for that being attempted with *Fire*, it is long in taking hold, growing only black without; and the *Timber* of it is ſo exceedingly tranſparent, that *Cabbins* being made of the thin *Boards*, when in the dark Night they have lighted Candles in them, People who at are diſtance without Doors, would imagine the whole Room to be on fire; which is pretty odd, conſidering there is no Material ſo (as they pretend) unapt to kindle. The *Larix* bears poliſhing excellently well, and the *Turners* Abroad much deſire it: *Vitruvius* ſays 'tis ſo ponderous, that it will ſink in the Water: It alſo makes everlaſting *Spouts*, *Pent-houſes*, and *Featheridge*, which needs neither *Pitch* or *Painting* to preſerve them; and ſo excellent *Pales*, *Poſts*, *Rails*, *Pedaments* and *Props* for *Vines*, &c. to which add the *Palats*

on

on which our *Painters* ſeparate and blend their *Colours*, and were (till the uſe of *Canvas* and *Bed-tike* came) the *Tables* on which the great *Raphael*, and moſt famous *Artiſts* of the laſt Age, eternized their Skill. CHAP. IV.

CHAP. IV.

Of the Cedar, Juniper, Cypreſs, Savine, Thuya, &c.

1. BUT now after all the beautiful and ſtately *Trees*, clad in perpetual *Verdure*,

Quid tibi odorato referam ſudantia ligno?

Should I forget the *Cedar?* which grows in all Extreams; in the moiſt *Barbados*, the hot *Bermudas*, (I ſpeak of thoſe *Trees* ſo denominated) the cold *New-England*, even where the *Snows* lie, as I am told, almoſt half the Year; for ſo it does on the Mountains of *Libanus*, from whence I have received *Cones* and *Seeds* of thoſe few remaining *Trees*. Why then ſhould they not thrive in *Old England?* I know not, ſave for want of Induſtry and Trial. CEDAR.

They grow in the *Bogs* of *America*, and in the *Mountains* of *Aſia*, ſo as there is, it ſeems, no Place or Clime which affrights it; and I have frequently raiſed them from their Seeds and Berries, of which we have the very beſt in the World from the *Summer-Iſlands*, though now almoſt exhauſted by the unaccountable Negligence of the *Planters*; as are likewiſe thoſe of M. *Libanus*, by the wandring and barbarous *Arabs*. The *Cedars* we have from *Jamaica* are a *ſpurious* Sort, and of ſo *porous* a Contexture, that *Wine* will ſink into it: On the contrary, that of *Carolina* ſo firm and cloſe, that *Barrels* and other *Veſſels* preſerve the ſtrongeſt *Spirits* in Vigour. The *New-England Cedar* is a lofty Grower, and proſpers into excellent *Timber*, which, being ſawn into *Planks*, make delicate *Floors*. They *ſhingle* their Houſes alſo with it, and generally employ it in all their Buildings. Why have we no more of it brought us, to raiſe, plant, and convert to the ſame Uſes? There is the *Oxycedrus* of *Lycia*, which the *Architect Vitruvius* deſcribes to have its Leaf like *Cypreſs*; but the right *Phœnician* reſembles more the *Juniper*, bearing a *Cone* not ſo *pointed* as the other, as we ſhall come to ſhew.

After theſe, I ſhall not here deſcend to the inferior Kinds, which ſome call *Dwarfs*, and common *Juniper-like Shrubs*, fitter to Head the Borders of *Coronary Gardeners*, and to be ſhorn. There is yet another of the *North-America*, lighter than *Cork* it ſelf, of a *fragrant Scent*, which is its only Virtue. In ſhort,

After all theſe *Exotics* brought from our *Plantations*, anſwering to the Name of *Cedar*, I ſhould eſteem that of the *Vermuda*, little inferior, if not ſuperior, to the nobleſt *Libanon*; and next, that of *Carolina* for its many *Uſes*, and laſting.

Having ſpoken of their ſeveral *Species*, we come now to the *Culture*, beſt raiſed from the Seeds, ſince it would be difficult to receive any Store from Abroad. To begin with that of M. *Libanus*; thoſe which ſeem of the greateſt *Antiquity*, are indeed majeſtical, extending the Boughs and Branches, with their *Cones ſurſum ſpectantia*, as by moſt

we

BOOK II. we are told; though a late * *Traveller* found otherwiſe, and *depending*, like other *coniferous Trees*; the ſturdy *Arms*, though in ſmaller Sprigs, grow in Time ſo weighty, as often to bend the very Stem, and main Shaft, whilſt that which is moſt remarkable, is the Structure of the *Cones* and *Seeds Receptacles*, tack'd and ranged between the Branch-leaves, in ſuch order, as nothing appears more curious and artificial, and, at a little Diſtance, exceedingly beautiful: Theſe *Cones* have the *Baſes* rounder, ſhorter, or rather thicker, and with blunter Points, the whole *circum-zoned*, as it were, with pretty broad thick *Scales*, which adhere together in exact *Series* to the very Top and Summit, where they are ſomewhat ſmaller; but the entire *Lorication* ſmoother couched than thoſe of the *Fir-kind:* Within theſe *Repoſitories*, under the *Seales*, neſtle the ſmall *nutting* Seeds, or rather *Kernels*, of a *Pear-ſhape*, though ſomewhat bigger; which how nouriſhed and furniſhed from the *central Style*, with their other *Integuments*, is admirably deſcribed by Mr. *Ray*, as that of the *Stalk* of the *Clogs*, thicker and longer, and ſo firmly knit to them, that it requires conſiderable Force to part them from the Branch, without ſplitting the Arm it ſelf. We have ſaid nothing concerning the *Leaf* of this *Tree*, which much reſembles thoſe of the *Larix*, but ſomewhat longer and cloſer ſet, *erect* and perpetually *green*, which thoſe of the *Larch* are not; but hanging down, drop off, and deſert the *Tree* in *Winter*.

* Le Bruyn.

The Seeds drop out of the *Cones* as other *Fir*, *Pine-kernels* and *Nuts* do, when the *Air*, *Sun*, or *Moiſture* open and unglue the *Scales*, which naturally it elſe does not in thoſe of the *Cedar* till the ſecond Year; but which after all the Preparations of burying in Holes made in the Earth and Sand (in which they are apter to rot) may more ſafely be done, by expoſing the *Clogs* diſcreetly to the *Sun*, or before the ſoft and gentle *Fire*, or, I think, beſt of all, by ſoaking them in *warm Water:* The *Cones* thus diſcharged the gaping *Seeds*, together with the reſt of the *Skeleton*, adhere a long while to the *Branches*, which not ſeldom hang on above two Years; as we likewiſe find in thoſe of other *reſinous* Trees, though falling ſooner.

The *Lachrymæ*, *Gum*, and other *Tranſudations*, ſerving more for *Unguents* and the *Chirurgion's Box*, than for other *Medicaments*, in which we find *Pliny* has little Faith: But that which is more *remarkable*, is the Virtue of the famous *Timber* of this noble *Tree*, being Proof againſt all *Putrefaction* of *human* and other Bodies, above all other *Ingredients* and *Compoſitions* of *Embalmers*; and that by a pretty *Contradiction*, giving *Life*, as it were, to the *Dead*, and deſtroying the *Worms* which are *living*; and as it does where any Goods are kept in *Cheſts* and *Preſſes* of the *Wood*, excepting *woollen Cloth* and *Furs*, which 'tis obſerved they corrupt. In the mean Time, touching the Manner of theſe Operations, as it concerns the Preſervation of the *Dead*, ſee more where we ſpeak of *Cypreſs*, &c. The Effects being aſcribed to the extream *Bitterneſs* of the *reſinous Juices*, whilſt the *Odour* is moſt grateful. The worthy Mr. *Ray* mentions the *Powder* and *Saw-duſt* of *Cedar* to be one of the greateſt Secrets uſed by our *Pollinctors* and *Mountebanks*, who pretend to this *embalming Myſtery*; and indeed, that the *Duſt* and very *Chips* are *exitial* to *Moths* and *Worms*, daily Experience ſhews us; though none in mine, than the dried Leaves and Stalks of *Marum-Syriacum*, familiarly planted in our *Gardens*. What therefore the late Traveller *Dampier* ſpeaks of *Cedar*, which

USES.

which he has ſeen *Worm-eaten*, could neither be that of *Libanus* or *Bermudas*, but haply of *Barbados*, *Jamaica*, or ſome other *Species*. Note, that the *Cedar* is of ſo dry a Nature, that it does not well endure to be faſtned with *Nails*, from which it uſually ſhrinks, and therefore *Pins* of the ſame Wood are better. Whatever other Property this noble *Tree* is deſervedly famous for, it is ſaid to yield an *Oil*, which above all other, beſt preſerves the *Monuments* of the *Learned*, *Books* and *Writings*; whence *Cedro dignus* became one of the higheſt *Elogies*: But whether that of the ingenious *Poet*,

Notandus minio, nec Cedro Charta notantur,

refers not to the *Colour* rather, which was uſually *red*, and perhaps tempered with this *bitter Oil* (as ſome conjecture) let our *Antiquaries* determine: The *Horns* and *Knobs* at the Ends of the *Rolling-ſtaves*, on which thoſe Sheets of *Parchment*, *&c.* (before the Invention of *Printing*, and compacted *Covers* now in uſe) as at preſent our *Maps* and *Geographical Charts* (peeping out a little beyond the Volume) were likely coloured with this *rutilant Mixture*.

Touching the *Diüternity* of this *Material*, 'tis recorded, that in the *Temple* of *Apollo Utica*, there was found *Timber* of near *two thouſand Years* old; and at *Sagunti* in *Spain*, a Beam in a certain *Oratory* conſecrated to *Diana*, which has been brought to *Zant*, two *Centuries* before the Deſtruction of *Troy*: That great *Seſoſtris*, King of *Egypt*, had built a Veſſel of *Cedar* of two hundred and eighty *Cubits*, all over gilded without and within: And the *Statue* of the *Goddeſs* in the famous *Epheſine Temple*, was ſaid to be of this *Material* alſo, as was moſt of the *Timber-work* of that glorious Structure: Though as to the *Idol* τῆς Διοπετοῦς mentioned in the *Acts* (when the *Mob* roſe up againſt the *Apoſtle*) ſome will have to be of *Ebony*, others of a *Vine-tree*, the moſt unlikely of all the reſt fit for the *Carver*. The *Sittim*, mentioned in *Holy Writ*, is thought to have been a Kind of *Cedar* of which moſt precious Utenſils were formed.

As to the Magnitude of *Cedar-trees*; we read of divers whoſe *Bodies* eight or nine Perſons could not embrace (as we ſhall ſhew hereafter) not here to let paſs what *Joſephus* relates *Solomon* planted in *Judea*, who doubtleſs tried many Experiments of this Nature, none being more *kingly* than that of *planting* for *Poſterity*: I do not ſpeak of thoſe growing on the Mountains of *Libanon*, in the northern and colder Tracts of *Syria*; or what ſtore thoſe *Foreſts* of them then afforded: But, as we are informed by that curious Traveller * *Ranwolſius* (ſince confirmed alſo by the *Virtuoſo Monconys*) there were not remaining above *twenty-five* of thoſe ſtately *Trees*, and ſince they were there, but ſixteen of that ſmall Number, as the ingenious Mr. *Mandeville* reports in his Journey from *Aleppo* to *Jeruſalem*: There was yet, he ſays, abundance of *young Trees*, and a ſingle *old one* of a prodigious Size *twelve Yards* and *ſix Inches* in the *Girt*; I ſuppoſe the ſame deſcribed by the late Traveller *Bruyn*, who ſpeaking of the Shadow of this *umbragious Tree*, alludes to that of *Hoſea*, Chap. xiv. Ver. 5. which 'tis not improbable might be one of thoſe yet remaining, where that *heroick* Prince employed *fourſcore thouſand* Hewers at work, for the Materials of one only *Temple*, and the *Palace* he built in the *City*; a pregnant Inſtance what *Time*, *Negligence* and *War* will bring to Ruin. But to return to what is ſaid of their preſent Number, *Le Bruyn*

* In Itin.

BOOK II. (whom juſt now we mentioned) makes them thirty-five or thirty-ſix, for he could not exactly tell, and pretends (like our *Stonehenge* on *Salisbury Plain*) none could ever yet agree of their *Number*.

In ſhort, upon Reflection of what we have hitherto concerning the univerſal Waſte and Deſtruction of *Timber-trees* (where due Regard is not taken to propagate and ſupply them) whole Countries have ſuffered as well as particular Provinces: Thus the *Apennines* are ſtripped of their goodly *Pine* and *Fir-trees* (which formerly the *Naturaliſt* commends thoſe Mountains for) to that Degree, as to render not only the City of *Florence*, but *Rome* her ſelf ſo expoſed to the nipping *Tramontan*'s (for ſo they call the *Northern Winds*) that almoſt nothing, which is rare and curious, will thrive without *Hyemation* and *Art*; ſo as even through the moſt of thoſe Parts of *Italy*, on this Side the Kingdom of *Naples*, flanked by the *Alpeſtral* Hills (clad as they perpetually are with *Snow*) they are fain to *Houſe*, and retire their *Orange*, *Citron*, and other delicate and tender Plants, as we do in *England*. There remains yet one *Mountain* among the *Appennines*, covered and crowned with *Cypreſs*; whereof ſome are of conſiderable Stature: Nor is all this indeed ſo great a Wonder, if we find the entire *Species* of ſome Trees totally loſt in Countries, as if there never had been any ſuch planted or growing in them: Be this applied to *Fir* and *Pine*, and ſeveral other Trees, for want of *Culture*, ſeveral Accidents in the *Soil*, *Air*, *&c.* which we daily find produces ſtrange Alterations in our *Woods*; the *Beech* almoſt conſtantly ſucceeding the *Oak*, to our great Diſadvantage, whilſt we neglect new *Seminations*. *Herodotus*, ſpeaking of the *Palms* (plentifully growing about *Delos*) ſays the whole *Species* was utterly loſt: More I might add on this Subject; but having perhaps been too long on theſe Remarks, and long enough on Cold M. *Libanus*. I paſs to,

1. *Juniper*; Let it not ſeem *unduly* placed, if after ſuch *Giants*, we bring that humble *Shrub* (ſuch as abound with us being ſo reckoned) to claim Affinity to the talleſt *Cedar*; ſince were not ours continually cropped, but maintained in ſingle *Stems*, we might perhaps ſee ſome of them riſe to competent *Trees*, fit for many curious Works, *Tables*, *Cabinets*, *Coffers*, *Inlaying*, *Floors*, *Carvings*, &c. we have of ſome of theſe Trees ſo large, as to have made *Beams* and *Rafters* for a certain *Temple* in *Spain*, dedicated to *Diana*; nor need we queſtion their being fit for other Buildings; celebrated for its emulating the *Cedar*, though not in Stature, yet in its Laſtingneſs: And ſuch, I think, the learned Dr. *Sloane* mentions, growing in *Jamaica*, little inferior to the *Vermudas*.

2. Of *Juniper*, we have three or four Sorts, *Male*, *Female*, *Dwarf*; whereof *one* is much taller, and more fit for Improvement. The *Wood* is *yellow*, and being cut in *March*, *ſweet* as *Cedar*, whereof it is accounted a *ſpurious* Kind; all of them difficult to remove with Succeſs; nor proſper, they being ſhaded at all, or over-dripped: The *Swediſh Juniper* (now ſo frequent in our new *modiſh* Gardens, and ſhorn into *Piramids*) is but a taller and ſomewhat brighter Sort of the *Vulgar*.

3. I have raiſed them abundantly of their *Seeds* (neither *watering* nor *dunging* the *Soil*) which in two Months will peep; and being governed like the *Cypreſs*, apt for all the Employments of that beautiful Tree: To make it grow *tall*, *prune*, and cleanſe it to the very *Stem*; the *Male* beſt. The diſcreet looſening of the *Earth* about the *Roots* alſo,

alſo, makes it ſtrangely to prevent your Expectations, by ſuddenly ſpreading into a *Buſh* fit for a thouſand pretty Employments; for coming to be much unlike that which grows *wild*, and is ſubject to the treading and cropping of *Cattle*, *&c.* it may be formed into moſt beautiful and uſeful *Hedges*. My late *Brother* having formerly cut out of one only *Tree*, an *Arbour* capable for *three* to ſit in; it was at my laſt meaſuring *ſeven* Foot ſquare, and *eleven* in Height; and would certainly have been of a much greater Altitude, and farther ſpreading, had it not continually been kept *ſhorn*: But what is moſt conſiderable, is, the little Time ſince it was *planted*, being then hardly *ten Years*, and then it was brought out of the *Common* a ſlender *Buſh*, of about *two Foot* high: But I have experimented a proportionable Improvement in my own *Garden*, where I do mingle them with *Cypreſs*; and they would perfectly become their Stations, where they might enjoy the *Sun*, and may very properly be ſet where *Cypreſs* does not ſo well thrive, namely, in ſuch *Gardens* and *Courts* as are open to the *Eddy-winds*, which indeed a little diſcolours our *Junipers* when they blow *eaſterly* towards the *Spring*, but they conſtantly recover again; and beſides, the Shrub is *tonſile*, and may be ſhorn into any Form. I wonder *Virgil* ſhould condemn its Shadow. *Juniperi gnavis Umbra* —— I ſuſpect him miſreported.

In the mean Time, *Botaniſts* are not fully agreed to what *Species* many noble and ſtately Trees, paſſing under the Names of *Cedar*, are to be reckoned; and therefore (for I cannot but mention thoſe of the *Vermuda* again in this Place) being ſo beautiful, tall, thick ſet with *Evergreen-leaves*, like the *Juniper*, with *Berries* indeed much larger, and may alſo be propagated by *Layers*; affording a *Timber* cloſe, ruddy for the moſt Part, eaſy to work, and yielding excellent *Flooring* fit for *Wainſcot*, and all curious *Cabinet-works*; keeping its agreeable *Odour* and *Fragrancy* longer than the reſt: There is alſo made a pleaſant and wholſome Drink of the *Seeds*, as they do of our *common Juniper*; of which hereafter. Neareſt the *Bermuda Juniper* comes the *Virginia*, both yet exceeded by that of *Carolina*, for the Perfections already mentioned, ſpeaking of *Cedar*, not forgetting the *Oxy-Cedrus*, which is reputed a Sort of *Juniper*; the *Berries* ſo abounding on our uncultivated *Buſhes* and barren *Heaths*, always pregnant, annually ripen, though not all at a Time; ſome ſticking longer, ſo as there will be *black*, *green* and *gray* ſucceeding one another.

4. And theſe afford (beſides a tolerable *Pepper*) one of the moſt univerſal *Remedies* in the World, to our crazy *Foreſter*; the *Berries* ſwallowed only, inſtantly appeaſe the *Wind-cholick*, and in Decoction moſt *ſoveraign* againſt an inveterate *Cough*: They are of rare Effect, being ſteep'd in *Beer*; and in ſome *Northern* Countries they uſe a *Decoction* of the *Berries*, as we do *Coffee* and *Tea*: The *Water* is a moſt ſingular *Specifick* againſt the *Gravel* in the *Reins*; but all is comprehended in the Virtue of the *Theriacle*, or *Electuary*, which I have often made for my poor *Neighbours*, and may well be termed the *Foreſter's Panacea* againſt the *Stone*, *Rheum*, *Pthyſic*, *Dropſy*, *Jaundice*, inward *Impoſthumes*, nay, *Palſie*, *Gout*, and *Plague* it ſelf, taken like *Venice-Treacle*. Of the extracted *Oil* (with that of *Nuts*) is made an excellent good *Varniſh* for *Pictures*, *Wood-work*, and to preſerve *poliſhed Iron* from the *Ruſt*. The *Gum* is good to rub on *Parchment* or *Paper*, to make it bear *Ink*, and the *Coals*, which are made of the *Wood*, USES.

BOOK II. *Wood*, endure the longeſt of any ; ſo as live *Embers* have been found after a Year's being covered in the *Aſhes :* See St. *Hierom ad Fabiolam*, upon that Expreſſion, *Pſal.* cxx. *v.* 4. If it arrive to full Growth, *ſpits* and *ſpoons*, imparting a grateful Reliſh, and very wholeſome where they are uſed, are made of this *Wood*, being well dried and ſeaſoned : And the very *Chips* render a wholeſome *Perfume* within Doors, as well as the duſty *Bloſſoms* in *Spring without*, and excellent *within* to correct the *Air*, and expel *Infection* ; for which Purpoſe the *Wood* ſhould be cut about *May*, and the *Raſures* well dried.

5. And ſince we now mention *Pepper*, it is by the moſt prudent and princely Care of his late *Majeſty*, *Charles* II. that I am aſſured of a late ſolemn *Act of Council*, enjoining the preſerving of that incomparable *Spice*, which comes to us from *Jamaica* under that *Denomination* ; though in Truth it be a Mixture of ſo many *Aromatics* in *one*, that it might as well have been called *Cinamon*, *Nutmeg* or *Mace*; and *All-ſpice*, to every of which it ſeems ſomething *allied :* And that there is not only prohibited the Deſtruction of theſe *Trees* (for it ſeems ſome *Prodigals* uſed to cut them down, for the more eaſie gathering) but Order taken likewiſe for their *Propagation*, and that *Aſſays* and *Samples* be from Time to Time ſent over, what other *Fruits*, *Trees*, *Gums* and *Vegetables* may there be found, and which I *prognoſtick* will at laſt alſo incite the *Planters* there to think of procuring *Cinamon*, *Cloves*, and *Nutmeg-trees* indeed from the *Eaſt-Indies*, and what other uſeful *Curioſities* do not approach our *Northern Bear* (and that are yet *Incicurabiles* amongſt us) and to plant them in *Jamaica*, and other of the *Weſtern Iſlands*, as a more ſafe and frugal Expedient to humble our *emulous* Neighbours ; ſince there is nothing in their *Situation*, or Defect of *Nature*'s Benignity, which ought in the leaſt to diſcourage us : And what if ſome of the *Trees* of thoſe *Countries* (eſpecially ſuch as aſpire to be *Timber*, and may be of Improvement amongſt us) were more frequently brought to *us* likewiſe here in *England ?* ſince we daily find how many rare *Exotics* and Strangers, with little Care, become *endenizon'd*, and ſo contented to live amongſt us, as may be ſeen in the *Platanus*, *Conſtantinople-Cheſnut*, the greater *Glandiferous Ilex*, *Cork*, *Nux Veſicaria* (which is an hard *Wood* fit for the *Turner*, &c.) the *Styrax*, *Bead-tree*, the famous *Lotus*, *Virginian Acacia*, *Guaiacum Pataviuм*, *Paliurus*, *Cypreſs*, *Pines*, *Fir*, and ſundry others, which grow already in our *Gardens*, expoſed to the *Weather* ; and ſo doubtleſs would *many* more : So judiciouſly obſerved is that of the learned *Author* of the *Hiſtory* of the *Royal Society*, Part. iii. Sect. xxviii. ‘ That whatever Attempts of ‘ this Nature have ſucceeded, they have redounded to the great Ad- ‘ vantage of the *Undertakers*. The *Orange* of *China* being of late ‘ brought into *Portugal*, has drawn a great *Revenue* every Year from ‘ *London* alone. The *Vine* of the *Rhene*, taking Root in the *Canaries*, ‘ has produced a far more delicious Juice, and has made the Rocks, ‘ and Sun-burnt Aſhes of thoſe *Iſlands*, one of the richeſt Spots of ‘ *Ground* in the *World*. And I will alſo inſtance in that which is now ‘ in a good Forwardneſs ; *Virginia* has already given *Silk* for the ‘ Cloathing of our *King* ; and it may happen hereafter, to give *Cloaths* ‘ to a great Part of *Europe*, and a vaſt Treaſure to our *Kings :* If the ‘ *Silk-worms* ſhall thrive *there* (of which there ſeems to be no Doubt) ‘ the Profit will be inexpreſſible. We may gueſs at it, by conſidering

‘ what

'what Numbers of *Caravans*, and how many great *Cities* in *Perſia* 'are maintained by that *Manufacture* alone, and what mighty *Cuſtoms* 'it yearly brings unto the *Sophi*'s Revenue.' Thus *he:* To which we might add, that not only the *China-orange* mentioned by the *Doctor*, but the whole *Race* of *Orange-trees*, were Strangers in *Italy*, and unknown to *Rome*; nor grew they nearer than *Perſia*, whence firſt they travelled into *Greece*, as *Atheneus* tells us. But to return to that of *China*, and give ſome Account of its Propagation in *Europe:* The *firſt* was ſent for a *Preſent* to the old *Conde Mellor*, then *prime Miniſter* to the *King* of *Portugal:* But of that whole *Caſe* (they came to *Liſbon* in) there was but *one* only *Plant*, which eſcaped the being ſo ſpoiled and tainted, that with great Care it hardly recovered, to be ſince become the Parent and *Progenitor* of all thoſe flouriſhing Trees of that *Name*, cultivated by our *Gardeners*, though not without ſenſibly *degenerating*. Receiving this *Account* from the illuſtrious *Son* of the *Conde* (Succeſſor in *Title* and *Favour*) upon his being recalled (then an *Exile* at our *Court*, where I had the Honour to be known to him) I thought fit to mention it in this Place, for an Inſtance of what the *Induſtry* we have recommended, would queſtionleſs, in leſs than half an *Age*, produce of *Wonders*, by Introduction, if not of quite *different*, yet of *better Kinds*, and ſuch *Variety* for *Pulchritude* and *Sweetneſs*; that when, by ſome princely *Example*, our late *Pride*, *Effeminacy* and *Luxury* (which has, to our vaſt *Charges*, excluded all the *Ornaments* of *Timber*, &c. to give Place to *Hangings*, *Embroideries*, and foreign *Leather*) ſhall be put out of Countenance, we may hope to ſee a *new Face* of Things, for the Encouragement of *Planters* (the more *immediate* Work of *God*'s Hands) and the natural, wholeſome and antient *Uſe* of *Timber*, for the more *laſting Occaſions*, and *Furniture* of our *Dwellings:* And though I do not ſpeak all this for the Sake of *Joyn'd-ſtools*, *Benches*, *Cup-boards*, *maſſy Tables*, and *gigantic Bed-ſteads* (the hoſpitable *Utenſils* of our *Fore-fathers*) yet I would be glad to encourage the *Carpenter* and the *Joyner*, and rejoice to ſee, that their *Work* and *Skill* do daily improve; and that by the *Example* and *Application* of his *Majeſty*'s *Univerſities*, and *Royal Society*, the *Reſtoration* and *Improvement* of *Shipping*, *mathematical* and *mechanical* Arts, the *Uſe* of *Timber* grows daily in more Reputation. And it were well if *great Perſons* might only be indulged to enrich and adorn their *Palaces* with *Tapeſtry*, *Damask*, *Velvet* and *Perſian* Furniture; whilſt by ſome wholeſome *ſumptuary* Laws, the univerſal Exceſs of thoſe coſtly and *luxurious Moveables* were prohibited meaner Men, for divers *politick* Conſiderations and Reaſons, which it were eaſie to produce; but by a leſs Influence than *ſeverer Laws*, it will be very difficult, if not altogether impoſſible, to recover our ſelves from a *Softneſs* and *Vanity*, which will in Time not only *effeminate*, but undo the *Nation*.

6. *Cupreſſus*, the *Cypreſs-tree* is either the *Stative*, or *Garden-tree*, the moſt *pyramidal* and beautiful; or that which is called the *Male* (though ſomewhat prepoſterouſly) which bears the ſmall *Cones*, but is of a more extravagant Shape: Should we reaſon only from our common *Experience*, even the *Cypreſs-tree* was, but within a few Years paſt, reputed ſo tender, and nice a *Plant*, that it was cultivated with the greateſt Care, and to be found only amongſt the *Curious*; whereas, we ſee it now in every *Garden*, riſing to as goodly a Bulk and Sta- CYPRESS.

Book II. ture, as moſt which you ſhall find even in *Italy* it ſelf; for ſuch I remember to have once ſeen in his late *Majeſty*'s *Gardens* at *Theobalds*, before that *princely* Seat was demoliſhed. I ſay, if we did argue from this *Topic*, methinks it ſhould rather encourage our *Country-men* to add yet to their *Plantations* other *foreign* and *uſeful* Trees, and not in the leaſt deter them, becauſe many of them are not as yet become *endenizon'd* amongſt us: But of this I have ſaid enough, and yet cannot but ſtill repeat it.

7. We may read that the *Peach* was at firſt accounted ſo tender, and delicate a *Tree*, as that it was believed to thrive only in *Perſia*; and even in the Days of *Galen*, it grew no nearer than *Egypt*, of all the *Roman* Provinces, but was not ſeen in the *City*, till about *thirty* Years before *Pliny*'s Time; whereas, there is now hardly a more common and univerſal in *Europe*: Thus likewiſe the *Avellana* from *Pontus* in *Aſia*, thence into *Greece*, and ſo *Italy*, to the City of *Abellino* in *Campania*.

Una tantùm litera immutata, Avellina *dici*, *quæ prius* Abellina.

I might affirm the ſame of our *Damaſco Plum*, *Quince*, *Medlar*, *Fig*, and moſt ordinary *Pears*, as well as of ſeveral other *Peregrine* Trees, *Fruit-bearers* and *others*; for even the very *Damask-roſe* it ſelf (as my Lord *Bacon* tells us, *Cent.* ii. *Exp.* 659.) is little more than an *hundred* Years old in *England*: Methinks this ſhould be of wonderful Incitement. It was ſix hundred and eighty Years after the Foundation of *Rome*, e'er *Italy* had taſted a *Cherry* of their own, which being then brought thither * out of *Pontus* (as the above-mentioned *Filberts* were) did, after one hundred and twenty Years, travel *ad ultimos Britannos*.

* A *Ceraſunte*. Indeed *Servius*, l. ii. *Geor.* i. ſays, it was earlier in *Italy*; but hard and wild, and uſually call'd *Corna*, and ſometimes *Corno-Ceroſa*, perhaps the *Black-Cherry*.

8. We had our firſt *Myrtils* out of *Greece*, and *Cypreſs* from *Crete*, which was yet a mere Stranger in *Italy*, as *Pliny* reports, and moſt difficult to be raiſed; which made *Cato* to write more concerning the *Culture* of it, than of any other *Tree*: Notwithſtanding we have in this *Country* of ours, no leſs than *three* Sorts, which are all of them eaſily propagated, and proſper very well, if they are rightly ordered; and therefore I ſhall not omit to diſcloſe one *Secret*, as well to confute a *popular* Error, as for the Inſtruction of our *Gardeners*.

9. The *Tradition* is, That the *Cypreſs* (being a *Symbol* of *Mortality*, *ferales & inviſas*, they ſhould ſay of the contrary) is never to be *cut*, for fear of *killing* it. This makes them to *impale* and *wind* them about, like ſo many *Ægyptian Mummies*; by which Means, the inward Parts of the *Tree* being heated, for want of *Air* and Refreſhment, it never arrives to any Perfection, but is exceedingly troubleſome and chargeable to maintain; whereas, indeed, there is not a more *tonſile* and governable *Plant* in Nature; for the *Cypreſs* may be *cut* to the very *Roots*, and yet ſpring afreſh, as it does conſtantly in *Candy*, if not yielding *Suckers* (as *Bellonius* affirms) I rather think produced by the *Seeds*, which the *Mother*-Trees ſhed at the Motion of the Stem in the Felling: And this we find was the *Husbandry* in the *Iſle* of *Ænaria*, where they uſed to fell it for *Copſe*: For the *Cypreſs* being raiſed from the *Nurſery* of *Seeds* ſown in *September* (or rather *March*) and within two Years after *tranſplanted*, ſhould at two Years ſtanding *more*, have the *Maſter*-Stem of the *middle* Shaft cut off ſome Handsbreadth below the *Summit*; the *Sides*, and ſmaller Sprigs ſhorn into

a *conic*, or *pyramidal* Form, and ſo kept *clipp'd* from *April* to *September*, as oft as there is occaſion; and by this *Regimen*, they will grow *furniſhed* to the *Foot*, and become the moſt *beautiful* Trees in the World, without *Binding* or *Stake*; ſtill remembering to *abate* the *middle* Stem, and to bring up the *collateral* Branches in its Stead, to what Altitude you pleaſe: But when I ſpeak of *ſhortening* the middle *Shoot*, I do not intend the *dwarfing* of it; and therefore it muſt be done diſcreetly, ſo as it may not over-haſtily advance, till the *Foot* thereof be perfectly furniſhed. But there is likewiſe another, no leſs commendable Expedient, to dreſs this *Tree* with all the former Advantages; if ſparing the Shaft altogether, you diligently cut away all the *forked Branches*, reſerving only ſuch as radiate directly from the *Body*, which being ſhorn, and clipt in due Seaſon, will render the *Tree* very beautiful; and though more ſubject to obey the ſhaking *Winds*, yet the natural *Spring* of it does immediately redreſs it, without the leaſt Diſcompoſure; and this is a *Secret* worth the learning of *Gardeners*, who ſubject themſelves to the Trouble of *Stakes* and *Binding*, which is very inconvenient. Thus likewiſe may you form them into *Hedges*, *topiary* Works, *Limits* and *Boundary*, *Metas imitata Cupreſſus*; or by ſowing the *Seeds* in a ſhallow *Furrow*, and plucking up the *Supernumeraries*, where they come too cloſe and thick: For in this *Work*, it will ſuffice to leave them within a Foot of each other; and when they are riſen about a Yard in Height (which may be to the half of your *Paliſado*) cut off their *Tops*, as you are taught, and keep the Sides *clipp'd*, that they aſcend but by Degrees, and thicken at the Bottom as they climb. Thus they will preſent you (in half a Dozen or eight Years) with incomparable *Hedges*; becauſe they are perpetually green, able to reſiſt the *Winds* better than moſt which I know, the *Holly* only excepted, which indeed has no *Peer*.

10. For when I ſay *Winds*, I mean their fierceſt *Guſts*, not their *cold*: For though it be ſaid, *Brumâque illæſa Cupreſſus*, and that indeed no *Froſt* impeaches them (for they grow even on the *ſnowy* Tops of *Ida*) yet our cruel *eaſtern* Winds do ſometimes mortally invade them which have been late *clipp'd*, ſeldom the untouch'd, or that were *dreſſed* in the *Spring* only: The Effects of *March* and *April* Winds (in the Year 1663 and 1665) accompanied with cruel *Froſts* and cold *Blaſts*, for the Space of more than two *Months*, Night and Day, did not, amongſt near a thouſand *Cypreſſes* (growing in my *Garden*) kill above *three* or *four*, which, for being very *late* cut to the *Quick* (that is, the latter End of *October*) were raw of their *Wounds*, took cold, and *gangreen'd*; ſome few others, which were a little ſmitten towards the *Tops*, might have eſcaped all their Blemiſhes, had my *Gardener* capp'd them but with a *Wiſp* of *Hay* or *Straw*, as in my Abſence I *commanded*. As for the *Froſt* of thoſe *Winters* (than which I believe there was never known a more cruel and deadly piercing ſince *England* had a Name) it did not touch a *Cypreſs* of mine, till it joined Forces with that deſtructive *Wind*: Therefore, for *Caution*, clip not your *Cypreſſes* late in *Autumn*, and cloath them (if young) againſt theſe *Winds*; for the *Froſts* they only *diſcolour* them, but ſeldom or never hurt them, as by long *Experience* I have found; nor altogether deſpair of the *Reſurrection* of a *Cypreſs*, ſubverted by the *Wind*; for ſome have redreſſed themſelves, and one (as *Ziphilinus* mentions) that roſe the very next Day, which happening about the Reign of the

Emperor

Book II. Emperor *Veſpaſian*, was eſteemed an happy *Omen*: But of ſuch Accidents more hereafter.

11. If you affect to ſee your *Cypreſs* in *Standard*, and grow wild (which may in Time come to be of a large Subſtance, fit for the moſt immortal of *Timber*, and indeed are the leaſt obnoxious to the Rigours of our *Winters*, provided you never *clip* or *disbranch* them) plant of the reputed *Male*-ſort; it is a *Tree* which will proſper wonderfully; and where the Ground is *hot* and *gravelly*, though (as we ſaid) he be nothing ſo beautiful; and it is of *this*, that the *Venetians* make their greateſt Profit.

12. I have already ſhewed how this *Tree* is to be raiſed from the *Seed*; but there was another *Method* amongſt the *Antients*, who (as I told you) were wont to make great *Plantations* of them for their *Timber*: I have practiſed it my ſelf, and therefore deſcribe it.

13. If you receive your *Seed* in the roundiſh ſmall *Nuts*, which uſe to be gathered *thrice* a Year (but ſeldom ripening with us) expoſe them to the *Sun* till they *gape*, or near a gentle *Fire*, or put them in *warm Water* (as was directed in thoſe of *Cedar*) by which means the *Seeds* will be eaſily ſhaken out; for if you have them open before, they do not yield you half their Crop: About the Beginning of *April* (or before, if the *Weather* be *ſhowery*) prepare an even *Bed*, which being made of fine *Earth*, clap down with your *Spade*, as *Gardeners* do for *Purſelain-ſeed* (of old they rolled it with ſome *Stone* or *Cylinder*) upon this ſtrew your *Seeds* pretty thick; then ſift over them ſome more *Mould*, ſomewhat better than half an *Inch* in height: Keep them duly *watered* after *Sun-ſet*, unleſs the Seaſon do it for you; and after one *Year*'s Growth (for they will be an *Inch* high in little more than two *Months*) you may *tranſplant* them where you pleaſe: If in the *Nurſery*, ſet them at a *Foot* or eighteen *Inches* diſtance in even Lines, kept watered and moiſt, till they are well rooted, and fit to be removed. In watering them, I give you this *Caution* (which may alſo ſerve you for moſt tender and delicate *Seeds*) that you *bedew* them rather with a *Broom* or *Spergitory*, than hazard the beating them out with the common *Watering-pot*; and when they are well come up, be but ſparing of *Water*: Be ſure likewiſe that you cleanſe them when the *Weeds* are very young and tender, leſt inſtead of *purging*, you quite eradicate your *Cypreſs*. We have ſpoken of *watering*, and indeed whilſt young, if well followed, they will make a prodigious Advance. When that long and incomparable Walk of *Cypreſs* at *Fraſcati* near *Rome*, was firſt planted, they drew a ſmall Stream (and indeed *irrigare* is properly thus, *aquam inducere riguis*, *i. e.* in ſmall *Gutters* and *Rills*) by the Foot of it (as the *Water* there is in abundance tractable) and made it (as I was credibly informed) arrive to ſeven or eight Foot Height in one Year (which does not agree with the *Epithet*, *Lenta Cupreſſus*); but with us, we may not be too prodigal; ſince, being once well taken, they thrive beſt in our ſandy, light and warmeſt Grounds; whence *Cardan* ſays, *juxta aquas areſcit*; meaning in low and mooriſh Places, ſtiff and cold Earth, *&c.* where they never thrive.

There is alſo a *Virginian Cypreſs*, of an enormous Height, beautiful and very ſpreading, the Branches and Leaves large and regular, with the *Clogs* reſembling the *Cypreſs*; and though the *Timber* be ſomewhat coarſe and *croſs-grained*, 'tis, when poliſhed, very agreeable; as I can ſhew in a very large *Table*, made out of the *Planks* of a *Spur* only;

ly; and had Experience of its Laſtingneſs, though expoſed both to the *Air* and *Weather*. CHAP. IV.

14. What the *Uſes* of this *Timber* are, for *Cheſts* and other *Utenſils*, *Harps*, and divers other *Muſical Inſtruments* (it being a very *ſonorous* Wood, and therefore employed for *Organ-pipes*, as heretofore for *Supporters* of *Vines*, *Poles*, *Rails* and *Planks* (reſiſting the *Worm*, *Moth*, and all Putrefaction to *Eternity*) the *Venetians* ſufficiently underſtood; who did every *twenty* Year, and oftner (the *Romans* every *thirteen*) make a conſiderable *Revenue* of it out of *Candy*: And certainly, a very gainful *Commodity* it was, when the *Fell* of a *Cupreſſetum* was heretofore reputed a good *Daughter's Portion*, and the *Plantation* it ſelf called *Dos filiæ*. But there was in *Candy* a vaſt *Wood* of theſe *Trees*, belonging to the *Republick*, by Malice or Accident (or perhaps by *ſolar* Heat, as were many *Woods* ſeventy-four Years after, even here in *England*) ſet on *Fire*, which *Anno* 1400, burning for ſeven *Years* continually, before it could be quite extinguiſhed, fed ſo long a Space by the *unctuous* Nature of the *Timber*, of which there were to be ſeen at *Venice* Planks of above *four* Foot in Breadth; and formerly the *Valves* of St. *Peter's* Church at *Rome*, were framed of this Material, which laſted from the great *Conſtantine* to *Pope Eugenius* the *Fourth's* Time, *eleven hundred Years*; and then were found as freſh and entire as if they had been new: But this *Pope* would needs change them for *Gates* of *Braſs*, which were caſt by the famous *Antonio Philarete*; not in my Opinion ſo venerable as thoſe of *Cypreſs*. It was in *Coffins* of this Material, that *Thucydides* tells us, the *Athenians* uſed to bury their *Heroes*, and the *Mummy*-Cheſts brought with thoſe *condited Bodies* out of *Egypt*, are many of them of this Material, which 'tis probable may have lain in thoſe dry and ſandy *Crypta*, many *thouſand Years*. USES.

15. The *Timber* of this *Wood* was of infinite Eſteem with the *Antients*: That laſting *Bridge* built over the *Euphrates* by *Semiramis*, was made of this Material; and it is reported, *Plato* choſe it to write his *Laws* in, before *Braſs* it ſelf, for the *Diuturnity* of the Matter: It is certain, that it never *rifts* or *cleaves*, but with great Violence; and the *Bitterneſs* of its *Juice*, preſerves it from all *Worms* and Putrefaction. To this Day thoſe of *Crete* and *Malta* make uſe of it for their *Buildings*; becauſe they have it in Plenty, and there is nothing outlaſts it, or can be more beautiful, eſpecially, than the *Root* of the wilder Sort, incomparable for its *criſped Undulations*. Divers learned Perſons have conceived the *Gopher* mentioned in *Holy Writ*, *Gen.* vi. 14. (and of which the *Ark* was built) to have been no other than this Κυπάρισσος, *Cupar* or *Cuper*, by the eaſie Mutation of *Letters*: *Aben Ezra* names it a *light Wood* apt to ſwim; ſo does *David Kimchi*; which rather ſeems to agree with *Fir* or *Pine*, and ſuch as the *Greeks* call ξύλα τετράγωνα *quadrangular Trees*, about which *Criticks* have made a deal of Stir: But *Iſa. Voſſius* (on the LXX. Cap. xi.) has ſufficiently made it out, that the Timber of that Denomination was of thoſe Sort of *Trees* whoſe *Branches* breaking out juſt oppoſite to one another at right *Angles*, make it appear to have been *Fir*, or ſome Sort of Wood whoſe *Arms* grew in a uniform manner; but ſurely this is not to be univerſally taken; ſince we find *Yew*, and divers other *Trees*, brittle, heavy, and unapt for *Shipping*, do often put forth in that Order. The ſame learned *Author* will have *Gopher* to ſignifie only *Pitch* or *Bitumen*, as much

Book II. much as if the *Text* had ſaid, Make an *Ark* of *reſinous Timber*. The *Chaldee Paraphraſe* tranſlates it *Cedar*, or as *Junius* and *Tremellius*, *Cedrelaten*, a Species between *Fir* and *Cedar*: *Munſter* contends for the *Pine*, and divers able *Divines* endeavour to prove it *Cypreſs*; and beſides, 'tis known, that in *Crete* they employed it for the ſame *Uſe* in the largeſt *Contignations*, and did formerly build *Ships* of it: And *Epiphanius Hæreſ.* Lib. i. tells us, ſome *Relicks* of that *Ark* (*circa Campos Sennaar*) laſted even to his Days, and was judged to have been of *Cypreſs*. Some indeed ſuppoſe that *Gopher* was the Name of a *Place*, *à Cupreſſis*, as *Elon à Quercubus*; and might poſſibly be that which *Strabo* calls *Cupreſſetum*, near *Adiabene* in *Aſſyria*: But for the Reaſon of its long laſting, *Coffins* (as noted) for the *Dead* were made of it, and thence it firſt became to be *Diti ſacra*; and the *Valves*, or Doors of the *Epheſine* Temple were likewiſe of it, as we obſerved but now, were thoſe of St. *Peter*'s at *Rome*: Works of *Cypreſs-wood*, *permanent ad diuturnitatem*, ſays *Vitruvius*, Lib. ii. And the *Poet*,

——*perpetuâ nunquam moritura Cupreſſo.*

MART. Ep. vi. 6.

The *Medical* Virtues of this *Tree* are for all Affects of the *Nerves*, aſtringent and refrigerating, for the *Hernia*, applied outwardly, or taken inwardly, for the *Dyſentary*, *Strangury*, &c.

But to reſume the Diſquiſition, whether it be truly ſo proper for *Shipping*, is controverted; though we alſo find in *Caſſiodorus Var.* Lib. v. Ep. xvi. *Theodoric* (writing to the *Prætorio-præfectus*) cauſed Store of it to be provided for that Purpoſe; and *Plato* (who we told you made *Laws*, and *Titles* to be engraven in it) nominates it, *inter Arbores ναυπηγοῖς*, *utiles* Lib. iv. *Leg.* and ſo does *Diodorus*, Lib. xix. And as *Travellers* obſerve, there is no other Sort of *Timber* more fit for *Shipping*, though others think it too heavy: *Ariſtobulus* affirms that the *Aſſyrians* made all their *Veſſels* of it; and indeed the *Romans* praiſed it, pitched with *Arabian Pitch*: And ſo frequent was this Tree about thoſe Parts of *Aſſyria* (where the *Ark* is conjectured to have been built) that thoſe vaſt *Armada*'s, which *Alexander* the *Great* cauſed to be equipped and ſet out from *Babylon*, conſiſted only of *Cypreſs*, as we learn out of *Arrian* in *Alex.* Lib. vii. and *Strabo*, Lib. xvi. *Plutar.* Sympoſ. Lib. i. Prob. ii. *Vegetius*, Lib. iv. Cap. xxxiv, *&c. Paulus Colomeſius* (in his *κειμήλια literaria* Cap. xxiv.) perſtringes the moſt learned *Iſ. Voſſius*, that in his *Vindiciæ pro* LXX. *Interp.* he affirms *Cypreſs* not fit for *Ships*, as being none of the *τελεσγωνοι*: But beſides what we have produced, *Fuller*, *Bochartus*, *&c. Lilius Gyraldus* (*Lib. de Navig.* Cap. iv.) and divers others ſufficiently evince it, and that the *Veſſel* built by *Trajan* was of that Material, laſting uncorrupt near 1400 Years, when it was afterwards found in a certain *Lake*; if it were not rather (as I ſuſpect) that which *Æneas Silvius* reports to have been diſcovered in his Time, lying under Water in the *Numidian Lake*, cruſted over with a certain ferruginous Mixture of Earth and Scales, as if it had been of *Iron*; but (as we have elſewhere noted) it was pronounced to be *Larix*, and not *Cypreſs*, employed by *Tiberius*: Finally (not to forget even the very *Chips* of this precious *Wood*, which give that Flavour to *Muſcadines* and other rich *Wines*) I commend it for the Improvement of the *Air*, and a *Specifick* for the *Lungs*, as ſending forth

Hadrian Junius Animadv. lib. i. cap. 20.

forth moſt ſweet and *Aromatick* Emiſſions, whenever it is either *clipped* or handled, and the *Chips* or *Cones* being burnt, extinguiſh *Moths*, and expel the *Gnats* and *Flies*, *&c.* not omitting the *Gum* which it yields, not much inferior to the *Terebinthine* or *Lentiſc.*

We have often mentioned the Virtue of theſe *Odoriferous Woods*, for the Improvement of the *Air*; upon which I take Occaſion here to add, what I have (ſome Years ſince) already * publiſhed, concerning the *Melioration* of it, *in* and *about* this great and populous *City*, accidently obnoxious to the Effects of thoſe nauſeous Vapours, exhaling from thoſe many unclean Places, and tainting that diſmal Cloud of *ſulphurous* (if not *arſenical*) *Smoak* which we unceſſantly breath in. I know the late terrible *Conflagration*, by the Care and Induſtry of the *Magiſtrate*, in cauſing ſo many *Kernels*, *Sinks*, *Gutters*, *Lay-ſtalls* and other *Nuſances* (Receptacles of a ſtagnant Filth) to be removed, muſt needs have exceedingly contributed to the purifying of the *Air*; as I am perſuaded would appear upon a *Political* Obſervation in the *Bills* of *Mortality*: But what I yet cannot but *deplore*, is, that (when that ſpacious *Area* was ſo long a *Raſa Tabula*) the *Church-yards* had not been baniſhed to the *North-walls* of the City, where a *grated Incloſure* of competent Breadth (for a Mile in Length) might have ſerved for an univerſal *Cœmetery*, to all the Pariſhes, diſtinguiſhed by the like Separations, and with ample Walks of *Trees*; the *Walks* adorned with *Monuments*, *Inſcriptions* and *Titles* apt for *Contemplation* and *Memory* of the *Defunct*; and that wiſe and antient Law of the twelve *Tables* reſtored and revived: But concerning this, and *Hortulan Buryings* upon *this* and other weighty Reaſons, ſee *Cap.* i. *Book* iv. Happy in the mean Time, had it been for the further *Purgation* of this *Auguſt Metropolis*, had they there (or did they yet) *baniſh* and *proſcribe* thoſe *helliſh Vulcano's*, diſgorging from the *Brew-houſes*, *Soap* and *Salt-Boilers*, *Chandlers*, *Hat-makers*, *Glaſs-houſes*, *Forges*, *Lime-Kilns*, and other *Trades*, uſing ſuch Quantities of *Sea-coals*, *one* of whoſe *Funnels* vomits more *Smoak* than all the *Culinary* and *Chamber-fires* of a whole *Pariſh*, as I have (with no ſmall Indignation) obſerved, at what Time they uſually put out their Fires, on *Saturday* Evening, and re-kindle on *Sunday* Night, or *Monday* Morning; perniciouſly infecting the ambient *Air* with a black *melancholy* Canopy, to the Detriment of the moſt valuable *Moveables* and *Furniture* of the *Inhabitants*, and the whole Country about it. A *Bar* of *Iron* ſhall be more exeded and conſumed with *Ruſt* in *one Year* in this City, than in *thrice-ſeven* in the Country: Why might it not therefore be worth a ſevere and publick *Edict*, to remove theſe *Vulcano's* and *Infernal Houſes* of *Smoak* to competent Diſtance; ſome down the *River*, others (which require Conveniency of *Freſh-water*) up the *Thames*, among the *Streams* about *Wandſworth*, *&c?* Their *Commodities* and *Manufactures* brought up to capacious *Wharfs*, on the *Bank*, or *London* Side, to the Increaſe of a *thouſand Water-men* and other *Labourers*, of which we cannot have too many?

* *Fumifugium.*

Now to demonſtrate that not only the *Amoval* of theſe unſufferable *Nuſances* would infinitely clarifie the *Air*, and render it more wholſome, and to return to my Subject of *Trees* and *Plants*; the Reputation they have had for contributing to the *Health* of whole Countries and Cities, frequently occur in *Hiſtory*: For Inſtance, in the *Iſland* of *Cyprus*, abounding with the *Trees* of that Name, and other *reſi-*

Book II. *nous Plants*, curing *ulcerated Lungs*, &c. *Sardinia*, *Melancholy* and *Madneſs*, replanted with true *Anticyran Hellebore*, was famous; whilſt *Thuſus* (eſpecially in *Summer*) brought almoſt all the Inhabitants to *Lunacy* and Diſtraction for want of it: And what the Effects and Benefit of ſuch *Plantations* have produced, is conſpicuous in one of the moſt celebrated Cities of the *Eaſt*, the famous *Iſpahan*, clear'd of the *Peſtilence*, ſince the ſurrounding it with that beautiful *Platan*, as I have already noted. To theſe add the *Bay-tree*, for abating all ſuch Infections; of which ſee many famous Inſtances in *Cap.* vi. to which I refer. Not that there are no *nociferous* Trees, as well as *ſaniferous*, which by removing the *one*, and planting *other* in their Places, make ſenſible Changes for the better. I give Inſtance, when we ſpeak of the *Yew*; and even that otherwiſe incomparably *uſeful Shrub* the *Elder*.

Upon what therefore has been produced of Expedients for the *Melioration* of the *Air* by *Plantations* of proper Trees, I cannot but wiſh, that ſince theſe precious *Materials* may now be had at ſuch tolerable Rates (as certainly they might from *Cape-Florida*, the *Vermuda*, or other Parts of the *Weſt-Indies*) I ſay, I cannot but ſuggeſt that our more *wealthy* Citizens of *London*, every Day building and embelliſhing their Dwellings, might be encouraged to make uſe of it in their Shops, at leaſt for *Shelves*, *Counters*, *Cheſts*, *Tables* and *Wainſcot*, &c. the *Fencerings* (as they term it) and *Mouldings*; ſince beſides the Everlaſtingneſs of the *Wood*, Enemy to *Worms*, and thoſe other Corruptions we have named, it would likewiſe greatly cure and reform the Malignancy and Corroſiveneſs of the *Air*.

Sabin. *Sabin*, or, as we call it, *Savine*, not for Dignity to be named with the former, but for its being abſolutely the beſt *Succedaneum* to *Cypreſs* (which the Rigour of our *Climate* is not ſo benign to) if our *Gardeners* did only increaſe and cultivate it for the other's Defects, and bring up *Nurſeries* of them for *Pyramids*, and other *Tonſile* and *Topiary* Works, they would oftner uſe it inſtead of *Cypreſs*: As to its other Quality, it has, indeed, an ill Report (as moſt other Things have when not rightly applied) whilſt there is nothing more efficacious for the Deſtruction of *Worms* in little *Children*, the *Juice* being given in a Spoonful of *Milk*, dulcified with a little *Sugar*, which brings them away in Heaps; as it does in *Horſes* and other *Cattle*, above all other *Remedies*.

There is another *Berry-bearing Savine* in warmer Climates, which alſo reſembles the *Cypreſs*, commonly taken for the *tarrentine Cypreſs*, ſo much celebrated by *Cato*, which grew to noble *Standards*: But that, and the *Meleſian*, worthy the Culture, are rare with us, and indeed is as well ſupplied by the more *hardy*, as well as the *ſweediſh Juniper*, and other *Shrubs*. The *Sabine* is eaſily propagated by Slips and Cuttings ſooner than by the Seeds, though ſometimes found in the ſmall *ſquamous* Seed-Caſes.

Tamaric. *Tamaric* (growing to a conſiderable *Tree*) for its Aptneſs to be ſhorn and governed like the *Sabine* and *Cypreſs*, may be entertained, but not for its laſting *Verdure*, which forſakes it in *Winter*, but ſoon again reſtores it. It was of old counted *Infelix*, and under Malediction, and therefore uſed to wreath, and be put on the Heads of *Malefactors*: But it has other excellent Properties, in particular ſovereign againſt the

* *Elizab.* *Spleen*, which, as * *Cambden* tells us, was therefore brought firſt into *Eng-*

England by *Grindal* Archbiſhop of *Canterbury*: They alſo made *Cans* to drink out of this Wood. CHAP. V.

Thuya, by ſome called *Arbor Vitæ* (brought us from *Canada*) is an hardy *Green* all the *Winter* (though a little tarniſhed in very ſharp Weather) raiſed to a *Tree* of moderate Stature, bearing a ragged Leaf, not unlike the *Cypreſs*, only ſomewhat flatter, and not ſo thick ſet and cloſe: It bears ſmall longiſh *Clogs* and *Seeds*, but takes much better by *Layers* and *Slips*, as thoſe we have before mentioned, and may be kept into the ſame Shapes, but moſt delights in the Shade, where the Roots running ſhallow, the Stem needs Support. The *Leaf* being bruiſed between the Fingers, emits a powerful *Scent*, not eaſily conquered, ſeeming to breath ſomething of a *ſanative Unguent*, and (as I am told) makes one of the beſt for the Cloſure of green and freſh *Wounds*: But that thoſe curious *Utenſils* and Works of the *Turners*, *Bowls*, *Boxes*, *Cups*, *Mortars*, *Peſtles*, *&c.* are of this Material (as is pretended) and paſs under the Name of *Lignum Vitæ* (or rather of ſome of the *exotic* more cloſe and ponderous *Wood*) as *Braſil*, *Log-wood*, *&c.* is a Miſtake. Upon *Recenſion* therefore of theſe *Exotics*, I cannot but encourage the more frequent raiſing the reſt of thoſe *Semper-vivents*, eſpecially ſuch as are fitteſt for the *ſhrubby* Parts, and Furniture of our *Groves*, mere Gardens of Pleaſure, which none but the *Ever-green* become. To theſe we might add (not for their *Verdure* only) other more rare *Exotics*, *Styrax*, *Arbor*, and *Terebynth*, noting, by the way, that we have no true *Turpentine* to be bought in our Shops, but what is from the *Larch*; whilſt *Apothecaries* ſubſtitute that which extils from the *Fir-tree*, inſtead of it: All of them minding me again of the great Opportunities and Encouragement we have of every Day improving our Stores with ſo many uſeful Trees from the *American Plantations*; for which I have the Suffrage of the often-cited Mr. *Ray*, who is certainly a very able Judge. Might we not therefore attempt the more frequent *Locuſt*, *Saſſafras*, *&c.* and that Sort of *Elm*, or *Sugar-tree*, whoſe Juice yields that ſweet *Halymus Latifolius*, and ſeveral others for Encouragement. But, THUYA.

14. I produce not theſe Particulars, and other *amœna vireta* already mentioned, as ſignifying any Thing to *Timber*, the main Deſign of this *Treatiſe* (though I read of ſome *Myrtles* ſo tall, as to make *Spear-ſhafts*) but to *exemplifie* in what may be farther added to *Ornament* and *Pleaſure*, by a cheap and moſt agreeable *Induſtry*.

CHAP. V.

Of the Cork, Ilex, Alaternus, Celaſtrus, Liguſtrum, Philyrea, Myrtle, Lentiſcus, Olive, Granade, Syring, Jaſmine, and other Exotics.

WE do not exclude this uſeful *Tree* from thoſe of the *Glandiferous* and *Foreſt*; but being inclined to gratify the Curious, I have been induced to ſay ſomething farther of ſuch *ſemper Virentia*, as may be made to ſort with thoſe of our *own* (eſpecially of the next *Chapter*.) I begin with the

1. *Cork*, [*Suber*] of which there are *two* Sorts (and divers more in the *Indies*) one of a narrow, or leſs jagged Leaf, and *perennial*; the CORK.

1

BOOK II. other of a broader, falling in *Winter*; grows in the *coldeſt* Parts of *Biſcay*, in the *North* of *New-England*, in the *South-Weſt* of *France*, eſpecially the ſecond *Species*, fitteſt for our *Climate*; and in all Sorts of Ground, dry *Heaths*, *ſtony* and *rocky Mountains*, ſo as the Roots will run even above the Earth, where they have little to cover them; all which conſidered, methinks we ſhould not deſpair. We have ſaid where they grow plentifully in *France*; but by *Pliny*, *Nat. Hiſt.* l. xvi. c. viii. it ſhould ſeem they were ſince tranſplanted thither; for he affirms there were none either *there* or in *Italy* in his Time: But I exceedingly wonder that *Carolus Stephanus*, and *Curſius*, ſhould write ſo peremptorily, that there were none in *Italy*; where I my ſelf have travelled through vaſt *Woods* of them about *Piſa*, *Aquin*, and in divers Tracts between *Rome* and the Kingdom of *Naples*, and in *France*. The *Spaniſh Cork* is a *Species* of *Enzina*, differing chiefly in the *Leaf*, which is not ſo *prickly*; and in the *Bark*, which is frequently four or five Inches thick. The Manner of *Decortication* thereof, is *once* in two or three Years to ſtrip it in a dry Seaſon; otherwiſe the intercutaneous *Moiſture* endangers the *Tree*, and therefore a rainy Seaſon is very pernicious; when the *Bark* is off, they unwarp it before the *Fire*, and preſs it *even*, and *that* with Weights upon the *convex* Part, and ſo it continues, being cold.

2. The *Uſes* of *Cork* is well known amongſt us, both at *Sea* and *Land*, for its reſiſting both Water and Air: The *Fiſher-men* who deal in *Nets*, and all who deal with *Liquors*, cannot be without it: Antient Perſons prefer it before *Leather* for the *Soles* of their *Shoes*, being light, dry, and reſiſting Moiſture; whence the *Germans* name it *Pantoffel-holts* (Slipper-wood) perhaps from the *Greek* Παντὸς & φέλλου; for I find it firſt applied to that Purpoſe by the *Grecian* Ladies, whence they were called *light-footed*; I know not whether the *Epithet* do ſtill belong to that *Sex*; but from them it is likely the *Venetian* Dames took it up for their monſtrous *Choppines*; affecting, or uſurping an artificial Eminency above *Men*, which *Nature* has denied them. Of one of the Sorts of *Cork* are made pretty *Cups*, and other *Veſſels*, eſteemed good to drink out of for *hectical* Perſons. The *Egyptians* made their *Coffins* of it, which being lined with a *reſinous* Compoſition, preſerved their *Dead* incorrupt. The poor People in *Spain*, lay broad *Planks* of it by their Beds-ſide to tread on (as great Perſons uſe *Turky* and *Perſian* Carpets) to defend them from the *Floor*, and ſometimes they line or *wainſcot* the Walls and Inſide of their Houſes built of Stone, with this *Bark*, which renders them very warm, and corrects the *Moiſture* of the Air: Alſo they employ it for *Bee-hives*, and to double the Inſides of their *Contemplores*, and Leather-caſes, wherein they put *Flaſquera's* with *Snow* to refrigerate their *Wine*. This *Tree* has beneath the *Cortex*, or *Cork*, two other *Coats*, or *Libri*, of which one is *reddiſh*, which they ſtrip from the *Bole* when it is felled only; and this bears good Price with the *Tanner*; the reſt of the *Wood* is very good Firing, and applicable to many other Uſes of *Building*, *Paliſade*-work, &c. The *Aſhes* drunk, ſtop the *Bloody-flux*.

ILEX. 3. *Ilex*, *major Glandifera*, or great *Scarlet-Oak*, of ſeveral *Species*, and various in the Shape of their Leaf, pointed rounder, longer, &c. (a *devoted* Tree of old, and therefore *incædua*) thrives manifeſtly with us; witneſs his Majeſty's *Privy-Garden* at *White-Hall*, where once flouriſhed a goodly *Tree*, of more than *fourſcore* Years Growth, and there

there was lately a ſickly *Imp* of it remaining: And now very many raiſed by me, have thrived wonderfully, braving the moſt ſevere *Winters*, planted either in *Standards* or *Hedges*, which they moſt beautifully become. The only Difficulty is in their being dextrouſly removed out of the *Nurſery*, with the *Mould* adhering to the *Roots*; otherwiſe apt to miſcarry; and therefore beſt truſting to the *Acorn* for a goodly *Standard*, and that may be removed without Prejudice. Trials ſhould be made by Graffing the *Ilex* in the *Oak-ſtock*, taken out of our *Woods*, or better, grown from the *Acorn* to the Bigneſs of one's little *Finger*.

4. By what I have touched in the *Chapter* of the *Elms*, concerning the *Peregrination* of that *Tree* into *Spain* (where even in *Pliny*'s Time there were none, and where now they are in great abundance) why ſhould we not more generally endeavour to propagate the *Ilex* amongſt us, I mean, that which the *Spaniards* call the *Enzina*, and of which they have ſuch *Woods* and profitable Plantations? They are an hardy Sort of *Tree*, and familiarly raiſed from the *Acorn*, if we could have them ſound, and well put up in *Earth* or *Sand*, as I have found by Experience.

5. The *Wood* of theſe *Ilexes* is ſerviceable for many *Uſes*, as *Stocks* of *Tools*, *Mallet-heads*, *Mall-balls*, *Chairs*, *Axle-trees*, *Wedges*, *Beetles*, *Pins*, and above all, for *Paliſadoes* uſed in *Fortifications*: Beſides, it affords ſo good *Fuel*, that it ſupplies all *Spain* almoſt with the beſt and moſt laſting of *Charcoals*, in vaſt abundance. Of the *firſt* Kind is made the *Painter's Lac*, extracted from the *Berries*; to ſpeak nothing of that noble Confection *Alkermes*, and that noble *Scarlet-Die* the Learned Mr. *Ray* gives us the *Proceſs* of at large, in his *Chapter* of the *Ilexes*; where alſo of their *medecinal* Uſes: To this add that moſt accurate Deſcription of this Tree and the *Vermicula*; ſee *Quinqueranus*, L. ii. *de Laud. Provid. fol.* 48, naturally abounding about *Alos*. The *Acorns* of the *Coccigera*, or *Dwarf-Oak*, yield excellent Nouriſhment for *Ruſtics*, ſweet, and little, if at all, inferior to the *Cheſnut*; and *this*, and not the *Fagus*, was doubtleſs the true *Eſculus* of the *Antients*, the Food of the *Golden Age*. The *Wood* of the *Enzina*, when *old*, is curiouſly *chambletted* and *embroidered* with natural *Vermiculations*, as if it were painted. *Note*, that the *Kermes*-Tree does not always produce the *Coccum*, but near the *Sea*, and where it is very hot; nor indeed when once it comes to bear *Acorns*; and therefore the People do often burn down the old Trees, that they may put forth freſh Branches, upon which they find them. This (as well as the *Oak*, *Cork*, *Beech* and *Corylus*) is numbered amongſt the *Felices*, and *Lucky-Trees*; but for what Reaſon, the *Alaternus* (which I am next ſpeaking of) together with the *Agrifolium* [Holly] *Pines*, *Salix*, &c. ſhould be *excommunicated*, as *Infelices*, I know not, unleſs for their being dedicated to the *infernal Deities*; of which *Macrob. Sat.* Lib. xii. Cap xvi. In the mean Time, take this for a *general Rule*, that *thoſe* were called *Infelices* only, which bare no *Fruit*; for ſo *Livy*, Lib. v. *Nulla folix arbor, nihil frugiferum in agro relictum.* Whence that of *Phædrus*, L. iii. *Fab.* upon *Jupiter's Eſculus*:

O nata, merito ſapiens dicere omnibus
Niſi utile eſt quod facimus, ſtulta eſt gloria.

Reciting the ancient Trees ſacred to the *Diety*, the moſt deſirable being thoſe that were *fruitful*, and for *uſe*.

6. The

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Alaternus. 6. The *Alaternus*, which we have lately received from the hotteſt Parts of *Languedoc* (and that is equal with the Heat of almoſt any Country in *Europe*) thrives with us in *England*, as if it were an *Indigine* and *Natural*; yet ſometimes yielding to a ſevere *Winter*, followed with a tedious *Eaſtern* Wind in the *Spring*, of all the moſt hoſtile and cruel Enemies of our *Climate*; and therefore to be artificially and timely provided againſt with Shelter.

7. I have had the Honour to be the firſt who brought it into *Uſe* and *Reputation* in this *Kingdom*, for the moſt beautiful and uſeful of *Hedges* and *Verdure* in the World (the *Swiftneſs* of the *Growth* conſidered) and *propagated* it from *Cornwal* even to *Cumberland:* The *Seed* grows ripe with us in *Auguſt*; and the Honey-breathing *Bloſſoms* afford an early and marvellous Relief to the *Bees*.

Celastrus. 8. The *Celaſtrus* (of the ſame *Claſs*) *Liguſtrum* and *Privitis*, ſo flexible and accomodate for *Topiary-works*, and ſo well known, I ſhall need ſay no more of.

Philyrea. 9. The *Philyrea* (of which there are five or ſix Sorts, and ſome variegated) are ſufficiently *hardy* (eſpecially the *Seratifole*) which makes me wonder to find the *Anguſtifolia* planted in *Caſes*, and ſo charily ſet into the *Stoves*, amongſt the *Oranges* and *Lemons*; when, by long Experience, I have found it equaling our *Holly*, in ſuffering the extreameſt Rigours of our cruel *Froſts* and *Winds*, which is doubtleſs (of all our *Engliſh* Trees) the moſt inſenſible and ſtout.

10. They are (both *Alaternus*, and *this*) raiſed of the *Seeds* (though thoſe of the *Philyrea* will be long under Ground) and being tranſplanted for *Eſpalier*-Hedges or Standards, are to be governed by the *Sheers*, as oft as there is occaſion: The *Alaternus* will be up in a *Month* or two after it is ſown: I was wont to waſh them out of the *Berry*, and drying them in a little Cloth, commit them to the *Nurſery-bed*. Plant it out at two Years Growth, and *clip* it after *Rain* in the *Spring*, before it grows ſticky, and whilſt the Shoots are tender; thus will it form an *Hedge* (though planted but in ſingle Rows, and at two Foot diſtance) of a Yard in Thickneſs, twenty Foot high (if you deſire it) and furniſhed to the Bottom: But for an Hedge of this Altitude, it would require the Friendſhip of ſome *Wall*, or a *Frame* of luſty *Poles*, to ſecure againſt the *Winds* one of the moſt delicious Objects in Nature: But if we could have ſtore of the *Philyrea folio leviter ſerrato* (of which I have raiſed ſome very fine *Plants* from the *Seeds*) we might fear no *Weather*, and the *Verdure* is incomparable, and all of them *tonſile*, fit for *Cradle-work* and *Umbracula frondium: A Decoction* of the *Anguſti fol.* ſoveraign for *ſore Mouths*.

Myrtle. 11. The *Myrtle*. The vulgar *Italian* wild *Myrtle* (though not indeed the moſt *fragrant*) grows high, and ſupports all *Weathers* and *Climates*; they thrive abroad in *Bretany*, in Places cold and very ſharp in *Winter*; and are obſerved no where to proſper ſo well, as by the *Sea-coaſts*, the Air of which is more propitious to them (as well as to *Oranges* and *Lemons*, &c.) than the *inland* Air. I know of *one* near *eighty* Years old, which has been continually *expoſed*, unleſs it be, that in ſome exceeding *ſharp* Seaſons, a little dry *Straw* has been thrown upon it; and where they are *ſmitten*, being cut down near the Ground, they put forth and recover again; which many Times they do not in *Pots* and *Caſes*, where the *Roots* are very obnoxious to periſh with *Mouldineſs*. The Shelter of a few *Mats* and *Straw*, ſecured

cured very great Trees (both Leaf and Colour in Perfection) this laſt *Winter* alſo, which were planted *abroad*; whilſt thoſe that were carried into the *Conſerve* were moſt of them loſt. *Myrtles* (which are of ſix or eight Sorts) may be raiſed of *Seeds*; as alſo may ſeveral Varieties of *Oranges* and *Lemons*, and made (after ſome Years Attendance) to produce *Fruit* in the cold *Rhetia* and *Helvetick* Valleys; but with great Caution, and after all, ſeldom prove worth the Pains, being ſo abundantly multiplied of *Suckers*, *Slips* and *Layers*: The *Double-flower* (which is the moſt beautiful) was firſt diſcovered by the incomparable *Fabr. Pireſhy*, which a *Mule* had cropt from a wild Shrub. *Note*, that you cannot give thoſe *Plants* too much *Compoſt* or refreſhing, nor clip them too often, even to the *Stem*; which will grow tall, and proſper into any Shape; ſo as *Arbours* have been made of ſingle Trees of the hardy Kind, protected in the *Winter* with *Sheds* of Straw and Reeds. Both *Leaves* and *Berries* refrigerate, and are very *aſtringent* and drying, and therefore ſeldom uſed *within*, except in *Fluxes*: With *Wine* and *Honey* it heals the noiſome *Polypus*, and the *Powder* corrects the Rankneſs of the *Arm-pits* and *Gouſſet* (as the *French* term it) to which divers of the *Female Sex* are ſubject: The *Berries* mitigate the *Inflammations* of the *Eyes*, conſolidate *broken Bones*; and a *Decoction* of the *Juice*, *Leaves* and *Berries*, dyes the *Hair* black, *& enecant Vitiligenes*, as *Dioſcorides* ſays, *Lib.* i. *Cap.* cxxviii. And there is an excellent *ſweet Water* extracted from the diſtilled *Leaves* and *Flowers*: To which the *Naturaliſt* adds, that they uſed the *Berries* inſtead of *Pepper*, to *ſtuff* and *farce* with them. Hence the *Mortadella* a *Mortatula*, ſtill ſo called by the *Italians*, perhaps the μυρλίδες of *Athenæus*, Deip. *Lib.* ii. *Cap.* xii. The *Vinum Myrtites* ſo celebrated by the * *Antients*, and ſo the *Oil*; and in ſome Places the *Leaves* for *Tanning* of *Leather*: And *Trees* have grown to ſuch Subſtance, as of the very *Wood* curious *Cups* and *Boxes* have been turn'd.

CHAP. V.

* *Cato, Columella, Paladius.*

The Variety of this rare *Shrub*, now furniſhing the *Gardens* and *Portico's* (as long as the Seaſon and Weather ſuits) and even in the ſevereſt *Winters* in the *Conclave*, are cut and contrived into various Figures, and of divers *Variegations*, moſt likely to be produced by the *Seeds*, as our learned Mr. *Ray* believes, rather than by *Layers*, *Suckers* or *Slips*, or from any Difference of *Species*. In the mean Time, let *Gardeners* make ſuch Trials, whilſt thoſe moſt worth the Culture, are the *ſmall* and *broad-leav'd*, the *Tarentine*, the *Belgick*, *Latifolia*, and *Double-flower'd*, and ſeveral more among the Curious; and of old, ſacred to *Venus*, ſo called from a *Virgin* belov'd of *Minerva*, the Garlands of the Leaves and Bloſſoms, impaling the Brows of *Incruentous* and unbloody *Victors* and *Ovations*.

And now if here, for the *Name* only, I mention the *Myrtus Braſantica*, or *Candle-berry* Shrub (which our Plantations in *Virginia*, and other Places have in Plenty) let it be admitted: It bears a *Berry*, which being boiled in *Water*, yields a *Suet* or *pinguid* Subſtance, of a *green* Colour, which being ſcumm'd and taken off, they make *Candles* with, in the Shape of ſuch as we uſe of *Tallow*, or *Wax* rather; giving not only a very clear and ſufficient Light, but a very agreeable Scent, and are now not ſeldom brought hither to us, but the Tree itſelf, of which I have ſeen a thriving one.

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Mastic-Tree.

12. *Lentiſcus* (a very beautiful *Ever-green*) refuſes not our *Climate*, protected with a little Shelter, amongſt other expoſed *Shrubs*, by *Suckers* and *Layers*: It is certainly an extraordinary *Aſtringent* and Dryer, applicable in the *Hernia*, *Straugury*, and to ſtop *Fluxes*; cloſes and cures *Wounds*; being infuſed in *red Wine*, is alſo uſed to tinge *Hairs* of that Colour, to *black* and *brown*: Not forgetting the beſt *Tooth-pickers* in the World, made of the *Wood*; but above all, the *Gum* for faſtening *looſe Teeth* in the *Gums*; the *Maſtick*, gathered from this profitable Buſh in the *Iſland* of *Scio*; beſide other Uſes: And as the *Lentiſc*, ſo may the

Olive.

13. *Olive* be admitted, though it produce no other *Fruit* than the *Verdure* of the Leaf; nor will it kindly breath our Air, nor the leſs tender *Oleaſter*, without the indulgent Winter-houſe take them in. But the

Granata.

14. *Granata* [*Malus Punica*] is nothing ſo nice. There are of this glorious *Shrub* three Sorts, eaſily enough educated under any warm Shelter, even to the raiſing *Hedges* of them, nor indeed affects it ſo much *Heat*, as plentiful *watering*. They ſupported a very ſevere *Winter* in my *Garden*, 1663, without any Trouble or Artifice; and if they preſent us their *bluſhing double Flowers* for the Pains of *Reciſion* and well *Pruning* (for they muſt diligently be purged of ſuperfluous *Wood*) it is Recompence enough; though placed in a very benign *Aſpect*, they have ſometimes produced a pretty ſmall *Pome*. It is a *Perdifolia* in *Winter*, and growing abroad, requires no extraordinary rich Earth, but that the Mould be looſened and eaſed about the Root, and hearty Compoſt applied in *Spring* and *Autumn*: Thus cultivated, it will riſe to a pretty Tree, though of which there is in Nature none ſo adulterate a Shrub. 'Tis beſt increaſed by *Layers*, *Approch* and *Inarching* (as they term it) and is ſaid to *marry* with *Laurels*, the *Damſon*, *Aſh*, *Almond*, *Mulberry*, *Citron*, too many I fear to hold. But after all, they do beſt being *caſed*, the *Mould* well mixt with rotten *Hogs-dung*, its peculiar Delight, and kept to a ſingle Stem, and treated like other *Plants* in the *Winter-ſhelter*; they open the *Bud* and *Flower*, and ſometimes with a pretty ſmall *Fruit*; the *Juice* whereof is *cooling*; the reſt of an *aſtringent* Quality. The *Rind* may alſo ſupply the *Gall* for making *Ink*, and will *tan Leather*.

Pipe-Tree.

15. The *Syring* [*Lilac*] or *Pipe-tree*, ſo eaſily propagated by *Suckers* or *Layers*; the *Flower* of the *White* (emulating both Colour and Flavour of the *Orange*) I am told is made uſe of by the *Perfumers*; I ſhould not elſe have named it among the *Ever-greens*; for it loſes the *Leaf*, though not its *Life*, however expoſed in the *Winter*: There are beſides this the *Purple*, by our *Botaniſts* called the *Perſian Jaſmine*, which next leads me to the other *Jaſmines*.

Jasmine.

16. The *Jaſmine*, eſpecially the *Spaniſh larger Flower*, far exceeding all the reſt, for the agreeable Odour and Uſe of the *Perfumer*: The common *White* and *Yellow* would flower plentifully in our *Groves*, and climb about the Trees, being as hardy as any of our *Periclimena* and *Honey-ſuckles*.

How 'tis increaſed by *Submerſion* and *Layers*, every *Gardener* skills; and were it as much employed for *Noſe-gays*, *&c.* with us, as it is in *Italy* and *France*, they might make Money enough of the *Flowers*; one

one ſorry *Tree* in *Paris*, where they abound, has been worth to a poor Woman near a *Piſtol* a Year.

There is no ſmall Curioſity and Addreſs in obtaining the *Oil*, or *Eſſence* (as we call it) of this delicate and *evanid Flower*, which I leave to the *Chymiſt* and the *Ladies*, who are worthy the Secrets.

CHAP. VI.

Of the Arbutus, Box, Yew, Holly, Pyracanth, Laurel, Bay, &c.

1. THE *Arbutus* (by us called the *Strawberry-tree*) too much I think neglected by us; making that a Rarity, which grows ſo common and naturally in *Ireland:* It is indeed with ſome Difficulty raiſed by *Seeds*, but propagated by *Layers*; if skilfully *pruned*, grows to a goodly Tree, patient of our *Clime*, unleſs the Weather be very ſevere: It may be contrived into moſt beautiful *Paliſades*, is ever *verdant:* I am told the Tree grows to a huge Bulk and Height in Mount *Athos* and other Countries: *Virgil* reports its *Inoculation* with the *Nut*; and I find *Bauhinus* commends the *Coal* for the *Goldſmiths* Works; and the *Poet*, ARBUTUS.

[a] Arbutean *Harrows, and the myſtick* Van.

2. *Buxus*, the *Box*, which we begin to *proſcribe* our *Gardens* (and indeed *Bees* are no Friend to it) ſhould not yet be baniſhed from our Care; becauſe the Excellency of the *Wood* does commute for the Unagreeableneſs of its Smell: Therefore let us furniſh our cold and barren *Hills* and *Declivities* with this uſeful *Shrub*, I mean the *taller* Sort; for *Dwarf* and more *Tonſile* in due Place. It will increaſe abundantly of *Slips* ſet in *March*, and towards *Bartholomew-tide*, as alſo of the *Seeds* contained in the *Cells*. Theſe Trees riſe naturally at *Boxley* in *Kent* in abundance, and in the County of *Surrey*, giving name to that *chalky Hill* (near the famous *Mole* or *Swallow*) whither the *Ladies*, *Gentlemen* and other *Water-drinkers* from the neighbouring *Ebeſham-Spaw*, often reſort during the heat of Summer to *walk*, *collation* and *divert* themſelves in thoſe *antilex* natural Alleys, and ſhady Receſſes, among the *Box-trees*; without taking any ſuch Offence at the Smell, which has of late baniſhed it from our *Groves* and *Gardens*; when after all, it is infinitely to be preferred for the bordering of *Flower-beds*, and flat *Embroideries*, to any ſweeter leſs-laſting *Shrub* whatever, ſubject after a Year or two to grow *dry*, *ſticky* and full of *Gaps*; which *Box* is ſo little obnoxious to, that, braving all Seaſons, it needs not to be renewed for twenty Years together, nor kept in order with the *Garden-ſheers*, above once or twice a Year; and immediately upon *that*, the caſting *Water* on it, hinders all thoſe offenſive *Emiſſions*, which ſome complain of. But whilſt I ſpeak in Favour of this Sort of *Edging*, I only recommend the Uſe of the *Dutch-box* (rarely found growing in *England*) which is a *pumil* dwarf Kind, with a ſmaller Leaf, and ſlow of Growth, and which needs not be kept above two Inches high, and yet grows ſo cloſe, that Beds bordered with *Boards*, keep not the Earth BUXUS.

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[a] *Arbutea* crates, & myſtica Vannus Iacchi. *Georg. i.*

in

Book II. in better Order; beſide, the Pleaſantneſs of the *Verdure* is incomparable.

One Thing more I think fit to add; that it may be convenient once in four or five, or ſix Years, to cut off the *Strings* and *Roots* which ſtraggle into the Borders, with a very ſharp *Spade*, that they may not prejudice the *Flowers*, and what elſe one plants in them.

I need not ſpeak much of the Uſes of this *Tree* (growing in Time to conſiderable Stature) ſo continually ſought after for many Utenſils, being ſo hard, cloſe and ponderous as to ſink like Lead in Water, and therefore of ſpecial Uſe for the *Turner*, *Engraver*, *Carver*, *Mathematical-Inſtrument*, *Comb* and *Pipe-makers* (*Si buxos inflare juvat*—— Virg.) give great Prices for it by *Weight*, as well as Meaſure; and by the *ſeaſoning*, and divers Manner of *cutting*, vigorous *Inſolations*, *Politure* and *Grinding*, the Roots of this *Tree* (as of even our common and neglected *Thorn*) do furniſh the *Inlayer* and *Cabinet-makers* with Pieces rarely *undulated*, and full of Variety. Alſo of *Box* are made *Wheels* or *Shivers* (as our *Ship-Carpenters* call them) and *Pins* for *Blocks* and *Pulleys*; *Pegs* for *Muſical-Inſtruments*; *Nut-crackers*, *Weavers-ſhuttles*, *Hollar-ſticks*, *Bump-ſticks*, and *Dreſſers* for the *Shoe-maker*, *Rulers*, *Rolling-pins*, *Peſtles*, *Mall-balls*, *Beetles*, *Tops*, *Tables*, *Cheſs-men*, *Screws*, Male and Female, *Bobins* for *Bone-lace*, *Spoons*, nay the ſtouteſt *Axle-trees*, but above all,

> [a] —— Box Combs *bear no ſmall Part*
> *In the* Militia *of the* Female Art;
> They *tie the* Links *which hold our* Gallants *faſt*,
> *And ſpread the* Nets *to which fond* Lovers *haſt*.

3. The *Chymical Oil* of this *Wood* has done the Feats of the beſt *Guaiacum* (though in greater Quantity) for the Cure of *Venereal* Diſeaſes, as one of the moſt expert *Phyſicians* in *Europe* has confeſſed. The *Oil* aſſwages the *Tooth-ach*. But, ſays *Rhodoginus*, the *Honey* which is made at *Treviſond* in *Box-trees* (I ſuppoſe he means gathered among them; for there are few, I believe, if any, ſo large and hollow as to lodge and hive them) renders them diſtracted who eat of it. *Lib.* xxiii. *Cap.* xxv.

Yew. 4. Since the Uſe of *Bows* is laid aſide amongſt us, the Propagation of the *Yew-tree* (of which we have two Sorts, and other Places reckon more, as the *Arcadian* Black and Red; the Yellow of *Ida*, infinitely eſteemed of old) is likewiſe quite forborn; but the Neglect of it is to be deplored; ſeeing that (beſides the Rarity of it in *Italy* and *France*, where but little of it grows) the barreneſt Grounds, and coldeſt of our Mountains (for

—— *Aquilonem & frigora taxi*)

might be profitably repleniſhed with them: I ſay, profitably, for, beſides the Uſe of the *Wood* for *Bows*,

—— *Ityræos taxi torquentur in arcus.*

(For which the cloſe and more deeply dyed is beſt) the forementioned *Artiſts* in *Box*, *Cabinet-makers*, *Inlayers*, and for the *Parquetè-floors*, moſt gladly employ it; and in *Germany* they uſe to *wainſcot* their Stoves with Boards of this Material: Alſo for the *Cogs* of *Mills*, *Poſts*

[a] —— non ultima belli
Arma Puellaris; Laqueos hæc nectit Amantûm,
Et venatricis diſponit retia Formæ. Couleii, Pl. Lib. vi.

to be ſet in moiſt Grounds, and everlaſting *Axle-trees*, there is none to be compared with it; likewiſe for the Bodies of *Lutes*, *Theorbo's*, *Bowls*, *Wheels*, and *Pins* for *Pullies*; yea, and for *Tankards* to drink out of: Whatever *Pliny* reports concerning its *Shade*, and the Stories of the Air about *Thaſius*, the Fate of *Cativulcus*, mentioned by *Cæſar*, and the ill Report which the *Fruit* has vulgarly obtained in *France*, *Spain* and *Arcadia*. But, CHAP. VI.

[b] *How are poor Trees traduc'd?*

5. The *Toxic* Quality was certainly in the *Liquor*, which thoſe good *Fellows* tippled out of thoſe *Bottles*, not in the *Nature* of the *Wood*; which yet he affirms is cured of that *venenous* Quality, by driving a *Brazen-wedge* into the Body of it. This I have never tried, but that of the *Shade* and *Fruit* I have frequently, without any deadly or noxious Effects: So that I am of Opinion, that *Tree* which *Seſtius* calls *Smilax*, and our *Hiſtorian* thinks to be our *Yew*, was ſome other *Wood*; and yet I acknowledge that it is eſteemed noxious to *Cattle* when 'tis in the *Seeds*, or newly ſprouting; though I marvel there appears no more ſuch Effects of it, both *Horſes* and other *Cattle* being free to brouſe on it, where it naturally grows: But what is very odd (if true) is, that which the late Mr. *Aubrey* recounts (in his *Miſcellanies*) of a *Gentlewoman* that had long been ill, without any Benefit from the *Phyſician*; who dreamed, that a Friend of hers deceaſed, told her Mother, that if ſhe gave her Daughter a Drink of *Yew pounded*, ſhe ſhould recover: She accordingly gave it her, and ſhe preſently died. The *Mother* being almoſt diſtracted for the Loſs of her *Daughter*, her *Chamber-maid*, to comfort her, ſaid, Surely what ſhe gave her was not the Occaſion of her Death, and that ſhe would adventure on it herſelf; ſhe did ſo, and died alſo: Whether all this be but a *Dream*, I cannot tell, but it was haply from theſe *lugubrous* Effects, that *Garlands* of *Taxus* were uſually carried at *Funerals*, as *Statius* implies in *Epicedium Vernæ*: However, to prevent all *funeſt Accidents*, I commend the *Tree* only for the Uſefulneſs of the *Timber*, and *hortulan Ornament*. That we find it ſo univerſally planted in our *Church-yards*, was doubtleſs ſome *Symbol* of *Immortality*, the Tree being ſo laſting, and always *green*. Our *Bee-Maſters* baniſh it from about their *Apiaries*.

One Thing more, whilſt I am ſpeaking of this *Tree*; it minds me of that very odd Story I find related by Mr. *Cambden*, of a certain amorous *Clergy-man*, that falling in Love with a pretty Maid who refuſed his *Addreſſes*, cut off her Head; which being hung upon a *Yew-tree* 'till it was rotten, the *Tree* was reputed ſo ſacred, not only whilſt the *Virgin*'s Head hung on it, but as long as the *Tree* it ſelf laſted; to which the People went in Pilgrimage, plucking and bearing away Branches of it, as an holy *Relick*, whilſt there remained any of the Trunk left, perſuading themſelves, that thoſe ſmall fine *Veins* and Filaments (reſembling *Hairs* between the Bark and the Body of the *Tree*) were the *Hairs* of the *Virgin*: But what is yet ſtranger, that the Reſort to this Place (then called *Houton*) (from a deſpicable Village) occaſioned the building of the now famous Town *Hallifax* in *Yorkſhire*, which imports *Holy-hair*. By this, and the like, may we eſtimate what a World of *Impoſtures* have, through Craft and Superſtition, gained the Repute of holy Places, abounding with rich Oblations (their Devotas).

[a] ——Quàm multa Arboribus tribuuntur crimina falſa?

BOOK II. *Pliny* ſpeaks of an old *Lotus* Tree in a *Grove* near *Rome*, which they called *Capittate*, upon which the *Veſtals* preſent (as our *Nuns*) were uſed to hang their *Hair* cut off at their *Profeſſion*. *Plin.* Lib. xvi. Cap. xliii. But that is nothing to this.

I may not in the mean Time omit what has been ſaid of the true *Taxus* of the *Antients*, for being a *mortiferous* Plant. Dr. *Belluccio*, *Preſident* of the *Medical Garden* at *Piſa* in *Tuſcany* (where they have this Curioſity) affirms, that when his *Gardeners* clip it (as ſometimes they do) they are not able to work above half an Hour at a Time, it makes their Heads ſo ake: But the Leaves of this *Tree* are more like the *Fir*, and is very buſhy, furniſhed with Leaves from the very Root, and ſeeming rather an *Hedge* than a *Tree*, though it grow very tall.

6. This *Engliſh Yew-tree* is eaſily produced of the *Seeds*, waſhed and cleanſed from their *Mucilage*, then buried and dried in Sand a little moiſt, any Time in *December*, and ſo kept in ſome Veſſel in the Houſe all Winter, and in ſome cool ſhady Place Abroad all the Summer, ſow them the Spring after: Some bury them in the Ground like *Haws*; it will commonly be the ſecond Winter e'er they peep, and then they riſe with their *Caps* on their *Heads*. Being three Years old, you may *tranſplant* them, and form them into *Standards*, *Knobs*, *Walks*, *Hedges*, *&c.* in all which Works they ſucceed marvellous well, and are worth our Patience for their *perennial Verdure* and *Durableneſs*. I do again name them for *Hedges*, preferable for Beauty, and a ſtiff Defence to any Plant I have ever ſeen, and may upon that Account (without Vanity) be ſaid to have been the firſt which brought it into Faſhion, as well for Defence, as for a *Succedaneum* to *Cypreſs*, whether in *Hedges* or *Pyramids*, *Conic-ſpires*, *Bowls*, or what other Shapes, adorning the *Parks* or larger *Avenues* with their lofty Tops thirty Foot high, and braving all the Efforts of the moſt rigid Winter, which *Cypreſs* cannot weather. I have ſaid how long-laſting they are, and eaſily to be ſhaped and clipped; nay, cut down, revive: But thoſe which are much ſuperannuated, and perhaps of many hundred Years ſtanding, periſh if ſo uſed.

7. He that in *Winter* ſhould behold ſome of our higheſt *Hills* in *Surrey*, clad with whole *Woods* of theſe *two* laſt Sort of *Trees*, for divers Miles in *Circuit* (as in thoſe delicious *Groves* of them, belonging to the *Honourable*, my noble Friend, the late Sir *Adam Brown* of *Bechworth-Caſtle*, from *Box-hill*) might, without the leaſt Violence to his *Imagination*, eaſily fancy himſelf tranſported into ſome new or enchanted *Country*; for, if any Spot of *England*,

[a] ——— ——— ——— *'tis here*
Eternal Spring, *and* Summer *all the Year.*

Of which I have already ſpoken in the former *Section*.

HOLLY. 8. But above all the natural *Greens* which inrich our *home-born* Store, there is none certainly to be compared to the *Agrifolium* (or *Acuifolium* rather) our *Holly* ſo ſpontaneouſly growing here in this Part of *Surrey*, that the large *Vale* near my own Dwelling, was antiently called *Holmes-Dale*; famous for the Flight of the *Danes*. The Inhabitants of great *Antiquity* (in their *Manners*, *Habits*, *Speech*) have a Proverb, *Homes-Dale never won*; *ne*, *never ſhall*. It had once a *Fort*, called *Homes-Dale-Caſtle*: I know not whether it might

[a] Hic ver perpetuum, atque alienis menſibus æſtas.

not

not be that of *Rygate*; but leaving this uncertain, and return to the Plant, I have often wondered at our *Curioſity* after foreign Plants, and expenſive *Difficulties*, to the Neglect of the *Culture* of this *vulgar*, but *incomparable* Tree; whether we will propagate it for *Uſe* and *Defence*, or for *Sight* and *Ornament*.

[a] *A Hedge of* Holly, *Theeves that would invade,*
Repulſes like a growing Paliſade;
Whoſe numerous Leaves ſuch Orient Greens *inveſt,*
As in deep Winter *do the* Spring *arreſt.*

Which makes me wonder why it ſhould be reckoned among the *unfortunate* Trees, by *Macrobius*, *Sat.* Lib. iii. Cap. xx. Others among the *Lucky*; for ſo it ſeems they uſed to ſend Branches of it, as well as of *Oak* (the moſt *fortunate*, according to the *Gentile Theology*) with their *Strenæ* (New-Years Gifts) begun (as *Symachus* tells us) by K. *Tatius*, almoſt as old as *Rome* her ſelf.

But to ſay no more of theſe *ſuperſtitious Fopperies*, which are many other about this Tree, we ſtill dreſs up both our *Churches* and *Houſes*, on *Chriſtmas* and other Feſtival Days, with this cheerful *green* and *rutilant Berries*.

9. Is there under *Heaven* a more glorious and refreſhing Object of the Kind, than an impregnable *Hedge* of about *four hundred Foot* in *Length*, *nine* Foot *high*, and *five* in *Diameter*; which I can ſhew in my now ruined *Gardens* at *Say*'s-*Court* (thanks to the *Czar* of *Moſcovy*) at any Time of the Year, glittering with its armed and varniſhed *Leaves?* The taller *Standards* at orderly Diſtances, bluſhing with their natural *Coral:* It mocks at the rudeſt Aſſaults of the *Weather*, *Beaſts*, or *Hedge-breakers*,

Et illum nemo impunè laceſſit.

It is with us of *two* eminent Kinds, the *prickly*, and *ſmoother leaved*; or, as ſome term it, the *Free-Holly*, not unwelcome, when tender, to *Sheep* and other *Cattle:* There is alſo of the *White-berried*, and a *Golden* and *Silver*, variegated in ſix or ſeven Differences, which proceeds from no Difference in the *Species*, but accidentally, and *Naturæ Luſu*, as moſt ſuch *Variegations* do; ſince we are taught how to effect it *artificially*, namely, by ſowing the *Seeds*, and planting in *gravelly* Soil, mixed with ſtore of *Chalk*, and preſſing it hard down; it being certain, that they return to their *native Colour* when ſown in richer Mould, and that all the *Fibres* of the *Roots* recover their natural Food.

10. I have already ſhewed how it is to be raiſed of the *Berries* (of which there is a Sort bears them *Yellow*, and propagate their *Colour*) when they are ready to drop, this only omitted, that they would firſt be freed from their tenacious and glutinous *Mucilage* by being waſhed, and a little bruiſed, then dried with a Cloth; or elſe bury them as you do the *Yew* and *Hips*; and let our *Foreſter* receive *this* for no common Secret, and take notice of the Effect: If you will ſow them in the *Berry*, keep them in dry *Sand* till *March*; remove them alſo after three or four Years; but if you plant the *Sets* (which is likewiſe

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[a] —— Mala furta hominum denſis mucronibus arcens
Securum defendit inexpugnabilis Hortum;
Exornatque ſimul, toto ſpectabilis anno,
Et numero, & viridi foliorum luce nitentûm.

COULEII, *Pl. l.* 6.

BOOK II. a commendable Way, and the *Woods* will furniſh enough) place 'em *Northwards*, as they do *Quick*. Of *this*, might there living *Pales* and Encloſures be made (ſuch as the Right Honourable my Lord *Dacres*, ſomewhere in *Suſſex*, has a *Park* almoſt environ'd with, able to keep in any *Game*, as I am credibly informed) and cut into *ſquare Hedges*, it becomes impenetrable, and will thrive in *hotteſt*, as well as the *coldeſt* Places. I have ſeen *Hedges*, or if you will, ſtout *Walls* of *Holly* twenty Foot in height, kept upright, and the *gilded* Sort budded low, and in two or three Places one above another, ſhorn and faſhioned into *Columns* and *Pilaſters*, *architectonially* ſhap'd, and at due Diſtance; than which nothing can poſſibly be more pleaſant, the *Berry* adorning the *Intercolumniations*, with the *ſcarlet Feſtoons* and *Encarpa*. Of this noble *Tree* one may take thouſands of them four Inches long, out of the *Woods* (amongſt the fall'n Leaves whereof they ſow themſelves) and ſo plant them; but this ſhould be before the *Cattle* begin to crop them, eſpecially *Sheep*, who are greedy of them when tender: Stick them into the Ground in a *moiſt* Seaſon, *Spring*, or early *Autumn*, eſpecially the *Spring*, ſhaded (if it prove too hot and ſcorching) till they begin to ſhoot of themſelves, and in very ſharp Weather, and during our *Eaſtern Eteſians*, covered with dry *Straw* or *Haume*; and if any of them ſeem to periſh, cut it cloſe, and you ſhall ſoon ſee it revive. Of theſe Seedlings, and by this Culture, I have raiſed *Plants* and *Hedges* full four Foot high in four Years: The luſtier and bigger the *Sets* are, the better, and if you can procure ſuch as are a Thumbs-breadth thick, they will ſoon furniſh into an *Hedge*. At *Dengeneſs* in *Kent*, they grow naturally amongſt the very *Beech* and *Pebbles*; but if your Ground be ſtiff, looſen it with a little fine *Gravel*: This rare *Hedge* (the Boaſt of my *Villa*) was planted upon a *burning* Gravel, expoſed to the *Meridian* Sun; for it refuſes not almoſt any Sort of barren Ground, hot or cold, and often indicates where *Coals* are to be dug.

11. True it is, that *Time* muſt bring this *Tree* to Perfection; it does ſo to all Things elſe, *& poſteritati pangimus*. But what if a little *Culture* about the *Roots* (not *dunging*, which it abhors) and frequent ſtirring of the *Mould*, double its Growth? We ſtay *ſeven Years* for a tolerable *Quick*, it is worth ſtaying it *thrice*, for *this*, which has no *Competitor*.

12. And yet there is an Expedient to effect it more inſenſibly, by planting it with the *Quick*: Let every *fifth* or *ſixth* be an *Holly-ſet*; they will grow up infallibly with your *Quick*; and as *they* begin to ſpread, make way for them by extirpating the *White-thorn*, till they quite domineer: Thus was my *Hedge* firſt planted, without the leaſt Interruption to the *Fence*, by a moſt pleaſant *Metamorphoſis*. But there is alſo another, not leſs applauded, by laying along well-rooted *Sets* (a Yard or more in length) and ſtripping off the *Leaves* and *Branches*, letting only ſomething of the Tops appear: Theſe, cover'd with a competent Depth of Earth, will ſend forth innumerable *Suckers*, which will ſuddenly advance into an *Hedge*; and grows as well under the *Shade* as *Sun*, provided you keep them *weeded*, and now and then looſen the Earth; towards which, if through extream Neglect, or other Accident, it grow thin, being cloſe cut down, it will fill and become ſtronger and thicker than ever.

Of

Of this ſtately *Shrub* (as ſome reckon it) there is lately found an *Holly*, whoſe Leaves are as *thorny* and *briſtly*, not only at the Edges, but all over, as an *Hedge-Hog*, which it may properly be called; and I think was firſt brought by Mr. *London* out of *France*.

13. The *Timber* of the *Holly* (beſides that it is the *whiteſt* of all hard *Woods*, and therefore uſed by the *Inlayer*, eſpecially under thin Plates of *Ivory*, to render it more conſpicuous) is for all ſturdy *Uſes*; the *Mill-wright*, *Turner* and *Engraver* prefer it to any other: It makes the beſt *Handles* and *Stocks* for *Tools*, *Flails*, *Riding-rods* the beſt, and *Carters Whips*; *Bowles*, *Chivers*, and *Pins* for *Blocks*: Alſo it excels for *Door-bars* and *Bolts*; and as of the *Elm*, ſo of this eſpecially, they made even *Hinges* and *Hooks* to ſerve inſtead of *Iron*, ſinking in the *Water* like it; and of the *Bark* is compoſed our *Bird-lime* thus:

14. Peel a good Quantity of the *Bark* about *Midſummer*; fill a *Veſſel* with it, and put to it *Spring-water*; then boil it, till the *gray* and *white Bark* riſe from the *green*, which will require near twelve Hours boiling; then taking it off the *Fire*, ſeparate the *Barks*, the *Water* firſt well drained from it: Then lay the *green Bark* on the *Earth*, in ſome cool *Vault* or *Cellar*, covering it with any Sort of green and rank *Weeds*, ſuch as *Dock*, *Thiſtles*, *Hemlock*, *&c.* to a good Thickneſs: Thus let it continue near a *Fortnight*, by which Time 'twill become a perfect *Mucilage*: Then pound it all exceedingly in a Stone *Mortar*, till it be a tough *Paſte*, and ſo very fine, as no Part of the *Bark* be diſcernable: This done, *waſh* it accurately well in ſome running Stream of *Water*, as long as you perceive the leaſt *Ordure* or Motes in it, and ſo reſerve it in ſome *earthen Pot*, to purge and *ferment*, ſcumming it as often as any thing ariſes for four or five Days, and when no more *Filth* comes, change it into a *freſh* Veſſel of Earth, and reſerve it for Uſe, *thus*: Take what Quantity you pleaſe of it, and in an earthen *Pipkin*, add a *third* Part of *Capons* or *Gooſe-greaſe* to it, well clarified, or *Oil* of *Walnuts*, which is better; incorporate theſe on a gentle *Fire*, continually ſtirring it till it be *cold*, and thus your *Compoſition* is finiſhed. But to prevent *Froſts* (which in ſevere Weather will ſometimes invade it on the *Rods*) take a quarter of as much *Oil* of *Petroleum* as you do of *Greaſe*, and no cold whatever will congeal it. The *Italians* make their *Viſchio* of the *Berries* of the *Miſſelto* of *Trees* (and indeed it is from this it is ſaid of the *Thruſh*, *Exitium ſuum caſcat*, that *Bird* being ſo exceeding Devourers of them) treated much after the ſame manner; but then they mix it with *Nut-oil*, an *Ounce* to a *Pound* of *Lime*, and taking it from the Fire, add half an *Ounce* of *Turpentine*, which qualifies it alſo for the *Water*. Great Quantities of *Bird-lime* are brought to us out of *Turky*, and from *Damaſcus*, which ſome conceive to be made of *Sebeſtens*, finding ſometimes the Kernels. This *Lime* is of a greener Colour, ſubject to *Froſts*, and impatient of *Wet*, nor will laſt above a *Year* or two good: Another Sort comes alſo out of *Syria*, of a *yellow* Hue; likewiſe from *Spain*, whiter than the reſt, which will reſiſt the *Water*, but is of an ill Scent. I have been told that the *Cortex* of our *Lantana*, or *wayfaring* Shrub, will make as good *Bird-lime* as the beſt. But let theſe ſuffice, being more than as yet any one has publiſhed. The ſuperior *Leaves* of *Holly-trees*, dried to a fine *Powder*, and drunk in *White-wine*, are prevalent againſt the *Stone*,

BOOK II. and cure *Fluxes*; and a Dozen of the mature *Berries*, being ſwallowed, purge *Phlegm* without danger. To which the learned Mr. *Ray* (in *Append. Plant. Angl.*) adds a *Zythogalum*, or *Poſſet*, made of *Milk* and *Beer*, in which is boiled ſome of the moſt pointed *Leaves*, for aſſuaging the Torment of the *Cholic*, when nothing elſe has prevailed. And now I might have here planted the

PYRACANTHA. 15. *Pyracantha*, both for its perpetual *Verdure*, if the *Fences* had not already challenged it, *Chap.* xx. *Lib.* i.

16. The *Lauro-Ceraſus*, or *Cherry-Bay*, which by the *Uſe* we commonly put it to, ſeems as if it had been only deſtin'd for *Hedges*, and to cover bare *Walls*: Being planted *upright*, and kept to the *Standard*, by cutting away the collateral *Branches*, and maintaining one *Stem*, will riſe to a very conſiderable *Tree*; and (for the firſt twenty Years) reſembling the moſt beautiful-headed *Orange*, in *Shape* and *Verdure*, arrive in Time to emulate even ſome of our luſty *Timber-trees*; ſo as I dare pronounce the *Laurel* to be one of the moſt proper and ornamental Trees for *Walks* and *Avenues*, of any growing.

17. Pity it is they are ſo abuſed in the *Hedges*, where the lower Branches growing *ſticky* and *dry*, by Reaſon of their frequent and unſeaſonable *cutting* (with the *Genius* of the *Tree*, which is to ſpend much in *Wood*) they never ſucceed after the firſt *ſix* or *ſeven* Years; but are to be new-planted again, or abated to the very *Roots* for a freſh *Shoot*, which is beſt, and ſoon would furniſh the Places. In a Word; as to the pruning of *Evergreen-Hedges*, there is no ſmall Skill and Addreſs to be uſed, in forming and trimming them for *Beauty* and *Stability*; by leaving the lower Parts next the Ground *broader* (two Foot were ſufficient for the Thickneſs of the talleſt *Hedge*) than the Tops, gradually, ſo as not much to exceed a *Foot* breadth at the upmoſt Verge (as *Architects* diminiſh *Walls* of *Stone* and *Brick* from the Foundation) for they will elſe be apt to bend and ſwag, eſpecially laden with *Winter Snows* or *Ice*; grow too thick, heat, wither, and foul within, dry and ſticky eſpecially; when it were more than Time they were cut cloſe to the Earth, for a freſh and *verdant* Spring; and this Method is to be practiſed in all *Hedges* whatſoever.

18. But would you yet improve the *Standard*, which I celebrate, to greater and more ſpeedy Exaltation? Bud your *Laurel* on the *Black-Cherry-Stock* to what height you pleaſe: This I had from an ocular Teſtimony, who was more than ſomewhat doubtful of ſuch *Alliances*; though ſomething like it in *Palladius*, ſpeaks it not ſo impoſſible;

> [a] *A* Cherry *graft on* Laurel-*ſtock*, *does ſtain*
> *The Virgin Fruit in a deep double Grain.*

19. They are raiſed of the *Seeds* or *Berries* with extraordinary Facility, or propagated by *Layers*, *Taleæ*, and *Cuttings*, ſet about the latter End of *Auguſt*, or earlier at St. *James-tide*, wherever there is Shade and Moiſture. Beſides that of the *Wood*, the *Leaves* of this *Laurel* boiled in *Milk*, impart a very grateful Taſte of the *Almond*; and of the *Berry* (or *Cherries* rather, of which *Poultery* generally feed on) is made a *Wine*, to ſome not unpleaſant. I find little concerning the Uſes of this *Tree*; of the *Wood* are ſaid to be made the beſt *Plow-handles*. Now that this rare *Tree* was firſt brought from

[a] Inſeritur lauro Ceraſus, partúque coacto
Tingit adoptivus virginis ora pudor.

Civitta-

Civitta-Vecchia into *England*, by the *Counteſs* of *Arundel*, Wife to that illuſtrious *Patron* of *Arts* and *Antiquities*, *Thomas* Earl of *Arundel* and *Surrey*, Great-Great-Grandfather to his Grace the preſent *Duke* of *Norfolk*, whom I left ſick at *Padoua*, where he died; highly diſpleaſed at his Grand-ſon *Philip*'s putting on the *Friars-Frock*, though afterwards the *Purple*, when *Cardinal* of *Norfolk*: After all, I cannot eaſily aſſent to the Tradition, though I had it from a noble Hand: I rather think it might firſt be brought out of ſome more *northerly Clime*, the Nature of the *Tree* ſo delighting and flouriſhing in the ſhady and colder Expoſures, and Abhorrence of Heat. CHAP. VI.

To crown this *Chapter* then, though in the *laſt Place* (for ſo *Finis Coronat Opus*) we reſerve the *Bay-Tree*.

20. *Bays* [*Laurus Vulgaris*] the learned *Iſaac Voſſius*, and *Etymologiſts*, are wonderfully curious in their Conjecture concerning its Derivation; (a *Laude*, ſays *Iſſidore*) and from the ingenious *Poet*, we learn how it became ſacred to *Apollo*, the *Patron* of the *Wits*, and ever ſince the *Meed* of *Conquerors* and *heroic Perſons*. But leaving *Fiction*, we paſs to the Culture of this noble and fragrant *Tree*, propagated both by their *Seeds*, *Roots*, *Suckers* or *Layers*: They (namely the *Berries*) ſhould be gathered dropping ripe. *Pliny* has a particular *Proceſs* for the ordering of them, not to be rejected, which is to gather them in *January*, and ſpreading them till their Sweat be over; then he puts them in *Dung*, and ſows them: As for the ſteeping in *Wine*, *Water* does altogether as well, others waſh the *Seeds* from their *Mucilage*, by breaking and bruiſing the glutinous *Berries*; then ſow them in rich Ground in *March*, by Scores in a Heap; and indeed ſo they will come up in *Cluſters*, but nothing ſo well, nor fit for *Tranſplantation*, as where they are *interred* with a competent Scattering, ſo as you would furrow *Peaſe*. Both this Way, and by ſetting them apart (which I moſt commend) I have raiſed Multitudes, and that in the *Berries*, kept in *Sand* till the *Spring*, without any farther *Preparation*; only for the firſt two Years, they would be defended from the piercing *Winds*, which frequently deſtroy them; and yet the ſcorching of their tender *Leaves* ought not to make you deſpair, for many of them will recover beyond Expectation; nay, though quite cut down, they *repullulate* and produce young *Suckers*. Such as are raiſed of *Berries*, may at three Years growth be *tranſplanted*; which let alone too long, are difficult to take. BAYS. *Met.* i.

21. This *Aromatic* Tree greatly loves the *Mother's Shade* (under which nothing elſe will proſper) yet thrives beſt in our hotteſt *Gravel*, having once paſſed thoſe firſt Difficulties: *Age* and *Culture* about the *Roots*, wonderfully augment its Growth; ſo as I have ſeen *Trees* near thirty Foot high of them, and almoſt two Foot *Diameter*. They make *Walking-ſtaves*, ſtrait, ſtrong and light, for old *Gentlemen*; and are fit alſo both for *Arbour* and *Paliſade-work*, ſo the *Gardener* underſtand when to *prune* and keep it from growing too *woody*. And here I cannot but take notice of thoſe beautiful *Caſe-ſtandards*, which of late you have had out of *Flanders*, *&c.* with *Stems* ſo even and upright; *Heads* ſo round, full and flouriſhing, as ſeem to exceed all the *topiary* Ornaments of the *Garden*; that *one* Tree of them has been ſold for more than *twenty Pounds*; though now the *Myſtery* revealed, the Price be much abated: And doubtleſs as good might be raiſed here (without ſending *beyond Sea* for them) were our *Gardeners* as induſtrious

Book II. ſtrious to *cultivate* and ſhape them. Some there are, who imagine them of another *Species* than our ordinary *Bay*, but erroneouſly. I wonder we plant not whole *Groves* of them and abroad; they being hardy enough, grow upright, and would make a noble *Daphneon*. The *Berries* are *emollient*, ſoveraign in Affections of the *Nerves*, *Cholics*, *Gargariſms*, *Baths*, *Salves* and *Perfumes*: *Bay-leaves* dried in a Fire-pan, and reduced to a fine *Powder*, as much as will cover half a Crown, being drank in *Wine*, ſeldom fail of curing an *Ague*. And ſome have uſed the Leaves inſtead of *Cloves*, imparting its Reliſh in *Sauce*, eſpecially of *Fiſh*; and the very dry *Sticks* of the *Tree*, ſtrew'd over with a little Powder or Duſt of *Sulphur*, and vehemently rubb'd againſt one another, will immediately take *Fire*; as will likewiſe the *Wood* of an old *Ivy*; nay, without any intentive Addition, by *Friction* only.

22. Amongſt other Things, it has of old been obſerved that the *Bay* is *ominous* of ſome *funeſt Accident*, if that be ſo accounted which *Suetonius* (in *Galba*) affirms to have happened before the Death of the Monſter *Nero*, when theſe *Trees* generally *wither'd* to the very *Roots* in a very mild *Winter*: And much later, that in the Year 1629, when at *Padoua*, preceding a great *Peſtilence*, almoſt all the *Bay-trees* about that famous *Univerſity* grew ſick and periſhed: *Certo quaſi præſagio* (ſays my Author) *Apollinem Muſaſq; ſubſequenti anno urbe illa bonarum literarum domicilio exceſſuras.*—— But that this was extraordinary, we are told the Emperor *Claudius*, upon occaſion of a raging *Peſtilence*, was, by his *Phyſicians*, adviſed to remove his *Court* to *Laurentium*, the *aromatick Emiſſions* of that *Tree* being in ſuch Reputation for clearing the *Air*, and reſiſting *Contagion*; upon which Account I queſtion not but *Pliny* (the *Nephew*) was ſo frequently at his beloved *Laurentium*, ſo near the *City*. Beſides, for their Virtue againſt *Lightning*, which *Tiberius* ſo exceedingly dreaded, that when it came with *Thunder*, he would creep under his *Bed* to avoid it, and ſhaded his *Head* with the Boughs. The Story of the *Branch* in the *Bill* of the *white Hen*, let fall into the Lap of *Livia Druſilla*, being planted, proſper'd ſo floridly, as made it reputed ſo ſacred, as to uſe it for impaling the Heads of the *triumphing Emperors*, and to adorn the *Limina* of the *Temples* and *Royal Palace* of the great *Pontiff*; and thence called *Janitrices Cæſarum*.

Cum tandem appoſita valantur limina lauro,
Cingit & Auguſtus arbor opaca fores!
Num quia perpetuos meruerunt iſta triumphos?

As ſtill at preſent in *Rome* and other *Cities*, they uſe to trim up their *Churches* and *Monaſteries* on ſolemn *Feſtivals*, when there is *Station* and *Indulgences* granted in Honour of the *Saint* or *Patron*; as alſo on Occaſion of ſignal *Victories*, and other joyful Tidings; and thoſe *Garlands* made up with *Hobby-horſe Tinſel*, make a glittering Show, and rattling Noiſe when the *Air* moves them.

With the *Leaves* of *Laurel*, they made up their *Diſpatches* and Letters, *Laurcis involutæ*, wrapt in *Bay-leaves*, which they ſent to the *Senate* from the victorious *General*: The *Spears*, *Lances* and, *Faſces*, nay *Tents* and *Ships*, &c. were all dreſs'd up with *Laurels*; and in *Triumph* every *Common Soldier* carried a Sprig in their Hand,

as we may ſee in the antient and beſt *Baſs-relievo* of the *Antients*, as of Virtue to purge them from Blood and Slaughter. And now after all this, might one conjecture by a mere Inſpection of thoſe ſeveral *Sculps*, *Statues* and *Medals* yet extant, repreſenting the *Heads* of *Emperors*, *Poets*, &c. the *Wreaths* and *Coronets* ſeem to be compoſed of a more *flexible* and compliant *Species* than the *common Bay*, and more applicable to the *Brows*, except where the *Ends* and *Stalks* of the tender Branch were tied together with a *Lemniſc* or *Ribbon*. And there be yet * who contend for the *Alexandrian Laurel*, and the *Tinus* as more *ductile*; but without any good Evidence. *Pliny* I find ſays nothing of this *Queſtion*, naming only the *Cyprian* and *Delphic*; beſides, the *Figure*, Colour of the *Rind* and *Leaf*, Crackling in the *Fire*, which it impugns (as 'tis ſaid it does *Lightning*) gives plainly the *Honour* of it to the common *Bay*. We ſay nothing of its *ſacred* Uſe in the *Gentile Luſtration*, *Purgation*, and ſeveral other *Attributes*. To conclude;

* *Carol. Avanti not. in Cornan' Bapt. Fiera.*

[a] *From* Laurel * *chew'd the* Pythian Prieſteſs *roſe*,
Events of future Actions to diſcloſe.
Laurel *triumphant Generals did wear*,
And Laurel *Heralds in their Hands did bear.*
Poets *ambitious of unfading Praiſe*,
Phœbus, *the* Muſes *all are crown'd with* Bays.
And Virtue *to her* Sons *the* Prize *does name*,
Symbol *of* Glory, *and immortal* Fame.

* Daphnephagi *were ſuch as after* eating *the* Leaves *of the* Bay, *became* inſpir'd.

I have now finiſhed my *Planting*: A Word or two concerning their *Preſervation*, and the *Care* of their *Infirmities*, expect in the following *Chapter*.

---

a Tu ſacros Phœbi tripodas, tu Sidera ſentis,
Et caſus aperis rerum præſaga futuros.
Te juvat armorum ſtrepitus, clangorque Tubarum;
Perque acies medias, ſæviquè pericula belli,
Accendis bellantûm animos; te Cynthius ipſe,
Te Muſæ, Vateſque ſacri optavêre Coronam:
Ipſa ſuis Virtus te ſpem proponit alumnis,
Tantùm ſervatus valuit pudor, & bona fama.

RAPINUS.

CHAP. VII.

Of the Infirmities of Trees, &c.

SO many are the *Infirmities* and *Sickneſſes* of *Trees*, and indeed Infirmities of the whole Family of *Vegetables*, that it were almoſt impoſſible to enumerate and make a juſt Catalogue of them; and as difficult to ſuch infallible *Cures* and *Remedies* as could be deſired; the *Effects* ariſing from ſo many, and ſuch different *Cauſes*. Whenever therefore our *Trees* and *Plants* fail and come ſhort of the *Fruit* and *Productions* we expect of them (if the Fault be not in our want of Care) it is certainly to be attributed to thoſe *Infirmities*, to which all *elementary* Things are obnoxious, either from the Nature of the Things themſelves, and in themſelves, or from ſome *outward* Injury, not only through their being unskilfully cultivated by *Men*, and expoſed to hurt-

ful *Beaſts*, but ſubject to be prey'd upon and ruin'd by the moſt *minute* and deſpicable *Inſect*, beſides other Caſualties and Accidents innumerable, according to the ruſtick Rhime,

The Calf, *the* Wind-ſhock *and the* Knot,
The Canker, Scab, Scurf, Sap *and* Rot,

affecting the ſeveral Parts: Theſe invade the Roots; *ſtony* and *rocky* Grounds, *Ivy*, and all *Climbers*, *Weeds*, *Suckers*, *Fern*, *Wet*, *Mice*, *Moles*, *Winds*, &c. to theſe may be added *Siderations*, *peſtiferous Air*, *Fogs*, exceſſive *Heat*, *ſulphurous* and *arſenic Smoak*, and *Vapours*, and other *Plagues*, *Tumours*, *Diſtortions*, *Lacrymations*, *Tophi*, *Gouts*, *Carbuncles*, *Ulcers*, *Crudities*, *Fungoſities*, *Gangreens*, and an *Army* more, whereof ſome are hardly diſcernable, yet *Enemies*, which not foreſeen, makes many a Bargain of *ſtanding Wood* (though ſeemingly *fair*) very coſtly *Ware*: In a Word, whatſoever is *exitial* to *Men*, is ſo to *Trees*; for the *Averſion* of which, they had of Old recourſe to the *Robigalia* and other *Gentile* Ceremonies: But no longer abuſed by *Charmers* and ſuperſtitious Fopperies, we have in this *Chapter* endeavoured to ſet down and preſcribe the *beſt* and moſt approved *Remedies* hitherto found out, as well natural as artificial.

And firſt, *Weeds* are to be diligently pulled up by Hand after *Rain*, whiles your Seedlings are very young, and till they come to be able to kill them with *Shade* and *Over-dripping*; and then are you for the *obſtinate*, to uſe the *Haw*, *Fork* and *Spade*, to extirpate *Dog-graſs*, *Bear-bind*, &c.

And here mentioning *Shade* and *Dripping*, though I cannot properly ſpeak of them as *Infirmities* of *Trees*, they are certainly the *Cauſes* of their unthriving till removed; ſuch as that of the *Oak* and *Maſt-holme*, *Wall-nut*, *Pine* and *Fir*, &c. the Thickneſs of the Leaves intercepting the Sun and Rain; whilſt that of other Trees *good*, as the *Elm*, and ſeveral other.

2. *Suckers* ſhall be duly *eradicated*, and with a ſharp Spade dexterouſly ſeparated from the *Mother-roots*, and tranſplanted in convenient Places for *Propagation*, as the Seaſon requires.

Here *Note*, That *Fruit* graffed upon *Suckers*, are more diſpoſed to produce *Suckers*, than ſuch as are propagated upon good *Stocks*.

3. *Fern* is beſt deſtroyed by ſtriking off the *Tops*, as *Tarquin* did the *Heads* of the *Poppies*: This done with a good *Wand* or *Cudgel*, at the *Decreaſe* in the Spring, and now and then in Summer, kills it (as alſo it does *Nettles*) in a *Year* or *two* (but moſt infallibly, by being eaten down, at its Spring, by *Scotch-ſheep*) beyond the vulgar way of *mowing* or *burning*, which rather increaſes than diminiſhes it.

4. Over-much *Wet* is to be drained by *Trenches*, where it infeſts the *Roots* of ſuch Kinds as require drier Ground: But if a *Drip* do fret into the Body of a *Tree* by the Head (which will certainly decay it) cutting firſt the Place ſmooth, *ſtop* and cover it with *Loam* and *Hay*, or a *Cerecloth*, till a new *Bark* ſucceed. But not only the *Wet*, which is to be diverted by *trenching* the Ground, is exitial to many *Trees*, but their *Repletion* of too abundant *Nouriſhment*; and therefore ſometimes there may be as much occaſion to uſe the *Lancet* as *Phlebotomy* and *Venæſection* to *Animals*; eſpecially if the *Hypotheſis* hold, of ſuperfluous *Moiſture*'s deſcent into the *Roots*, to be re-concocted; but where, in Caſe it be more copious than can be there elaborated, it turns

See *Chap.* iii. *Lib.* iii. *Sect.* 25.

to

to Corruption, and ſends up a tainted *Juice*, which perverts the whole *Habit* of the *Tree*: In this Exigence therefore, it were perhaps more adviſable, to draw it out by a deep *Inciſion*, and to depend upon a new Supply, than upon Confidence of correcting this evil Quality, by other *Medications*, to let it periſh. Other *Cauſes* of their *Sickneſs* (not always taken notice of) proceed from too liberal Refreſhments and *Over-watering* in dry and ſcorching Seaſons, eſpecially in *Nurſeries*: The Water ſhould therefore be fitly qualified, neither brackiſh, bitter, ſtagnat, or putrid, ſowre, *acrimonious*, *vitriolic*, arenous and gravelly, churliſh, harſh and lean (I mention them promiſcuouſly) and whatever vicious Quality they are *perceptibly* tinctured and *impregnate* with, being by no means proper *Drink* for *Plants*: Wherefore a very *critical Examen* of this ſo neceſſary an *Element* (the very *Principle*, as ſome think, and only Nutriment of *Vegetables*) is highly to be regarded, together with more than ordinary Skill how to apply it: In order to which, the *Conſtitution* and *Texture* of *Plants* and *Trees* are *philoſophically* to be conſidered; ſome affecting Macerations with *Dung* and other Mixtures (which I ſhould not much commend) others quite contrary, the quick and running Spring, dangerous enough, and worſe than *Snow-water*, which is not in ſome Caſes to be rejected: Generally therefore that were to be choſen, which paſſing ſilently through *Ponds* and other *Receptacles*, expoſed to the *Sun* and *Air*, neareſt approaching to that of *Rain*, dropping from the *uberous Cloud*, is certainly the moſt natural and nurſing: As to the Quantity, ſome *Plants* require plentiful watering, others rather often, than all at once; all of them ſucking it in by the *Root* for the moſt Part, which are their *Mouths*, and carry it thence through all the Canales, Organs and Members of the whole vegetable Body, digeſted and qualified ſo as to maintain and ſupply their Beings and Growth, for the producing of whatever they afford for the Uſe of Man, and other living Creatures.

See *Chap.* ii. *Book* i.

5. The *Bark-bound* are to be releaſed by drawing your *Knife* Rind-deep from the *Root*, as far as you can conveniently, drawing your *Knife* from the *Top* downwards half-way, and at a ſmall Diſtance, from the Bottom *upwards*, the other half; this, in more Places, as the Bulk of the *Stem* requires; and if crooked, cut deep and frequent in the *Ham*; and if the gaping be much, filling the *Rift* with a little *Cow-dung*; do this on each Side, and at Spring, *February* or *March*: Alſo cutting off ſome *Branches* is profitable, eſpecially ſuch as are *blaſted*, or *Lightning-ſtruck*: If (as ſometimes alſo) it proceed from the *baking* of the *Earth* about the *Stem*, lighten and ſtir it.

6. The *Teredo*, *Coſſi*, and other *Worms*, lying between the *Body* and the *Bark* (which it ſeparates) poiſon that Paſſage to the great Prejudice of ſome *Trees*; but the *Holes* being once found, they are to be taken out with a light *Inciſion*, the Wound covered with *Loam*; or let the dry Part of the Wood (*Bark* and all) be cut; applying only a *Waſh* of *Piſs* and *Vinegar* twice or thrice a Week during a Month: The beſt Means to find out their Quarters, is to follow the *Wood-pecker* and other *Birds*, often pitching upon the *Stem* (as you may obſerve them) and knocking with their *Bills*, give Notice that the *Tree* is infected, at leaſt between the *Bark*. But there are divers Kinds of theſe ξυλόφαγοι, of which the τρηδὼν or *Tarmes* we have mentioned, will ſometimes make ſuch a Noiſe in a *Tree*, as to awaken a ſleeping Man: the more *rugous* are the *Coſſi*, of Old had *in deliciis* amongſt the *Epicures*,

cures, who uſed to fatten them in *Flower*; and this (as *Tertullian* and S. *Hierom* tells us) was the chief Food of the *Hierophantæ Cereris*; as they are this Day a great *Regalo* in *Japan*: In the mean Time, Experience has taught us, that *Millipedes* Wood-lice (to be plentifully found under old *Timber-logs*, being dried and reduced to *Powder*, and taken in Drink) are an admirable *Specifick* againſt the *Jaundice*, *Scorbut*, *&c.* to purify the *Blood*, and clarify the *Sight*.

There is a peſtilent *green Worm* which hides itſelf in the Earth, and gets into *Pots* and *Caſes*, eating our *Seedlings*, and gnawing the very *Roots*, which ſhould be ſearched out: And now we mention *Roots*, over-grown *Toads* will ſometimes neſtle at the *Roots* of *Trees*, when they make a *Cavern*, which they infect with a poiſonous , of which the *Leaves* famiſhed and flagging give Notice, and the Enemy dug out with the Spade: But this chiefly concerns the *Gardeners mural Fruit-trees*; though I queſtion not but that even our *Foreſt-trees* ſuffer by ſuch pernicious Vapours, *Rats*, and other ſtinking *Vermin* making their Neſts with them. But of all theſe, let our induſtrious *Planter* (eſpecially the learned Favourers of the moſt *refined* Parts of *Horticulture*) conſult the Diſcourſes and Experiments of Sign. *Fran. Redi*, *Malphigius*, *Leuenhoek*, *Swamerdam*, &c. with our own learned Doctors, *Lyſter*, *Sloane*, *Hook* (and other ſagacious *Naturaliſts*) to ſhew, that none of theſe *Diſeaſes* and *Infirmities* in *Plants* proceed from any pure *accidental*, but *real* Cauſe; *Flatus*, *venemous Liquor*, and *Infections*; which ſome, even of the minuteſt *Animals*, are provided with Inſtruments to *pierce* the very ſolid Subſtances of *Trees* and *Plants*, and infuſe their *peſtiferous Taint*; where likewiſe they leave their *Eggs*, boring thoſe neſtling Places with a certain *Terebræ*, where we find thoſe innumerable *Perforations* which we call *Worm-eaten*; the wider *Latebræ* are made by *Erucæ*, *Caterpillers*, *Ants*, and bigger *Inſects*, raiſing *morbid Tumors* and *Excreſcences*, and preying upon the *Fruit* as well as on the *Leaves*, *Buds* and *Flowers*, ſo ſoon as their *Eggs* are hatch'd, when they creep out of their little Caverns in *Armies*, like the *Egyptian Locuſts*, invading all that's green, and tender Rudiments firſt, and then attacking the tougher and ſolider Parts of *Vegetables*. To thoſe learned Perſons above, we may not forget the late worthy and pious Mr. *Ray*, where in the Second Part of his *Treatiſe* of the *Wiſdom of God in the Creation*, we have a brief, but ingenious Account of what concerns this Subject, together with what is added about *ſpontaneous Productions* of theſe deſpicable little Animals, to which I refer the Curious.

Trees (eſpecially *Fruit*-bearers) are infeſted with the *Meaſels*, by being burned and ſcorched with the Sun in great Droughts: To this commonly ſucceeds *Louſineſs*, which is cured by boring an *Hole* into the principal *Root*, and pouring in a Quantity of *Brandy*, ſtopping the *Orifice* up with a *Pin* of the ſame *Wood*.

Crooked Trees are reformed by taking off or topping the *Præponderers*, whilſt charged with *Leaves*, or *woody* and hanging *Counterpoiſes*.

Excorticated and *Bark-bared* Trees, may be preſerved by nouriſhing up a *Shoot* from the Foot, or below the *ſtripped* Place, and inſerting it into a *Slit* above the *wounded* Part; to be done in the Spring, and ſecured from *Air*, as you treat a *Graff*: This I have out of the very induſtrious Mr. *Cook*, p. 48. But Dr. *Merret* brought us in this

Relation to the *Royal Society*, that making a ſquare *Section* of the *Rinds* of *Aſh* and *Sycomore* (*March* 1664.) whereof three Sides were *cut*, and *one* not, the Succeſs was, that the whole *Bark* did *unite*, being bound with *Pack-thread*, leaving only a *Scar* : But being ſeparated intirely from the *Tree*, namely ſeveral Parts of the *Bark*, and at various Depths, leaving on ſome Part of the *Bark*, other cut to the very *Wood* itſelf, being tied on as the former, a new *Rind* ſucceeded in their Place ; but what was covered over beyond the Places of *Inciſion* with *Diachylon Plaiſter*, and alſo bound as the reſt, did, within the Space of three Weeks, unite to the Tree, though with ſome Shriveling and Scar : The ſame *Experiment* tried about *Michaelmas*, and in the *Winter*, came to nothing : Where ſome *Branches* were *decorticated* quite round, without any *Union*, a Withering of the *Branch* beyond the *Inciſion*, enſued : Alſo a *Twig* ſeparated from a *Branch*, with a ſloping Cut, and faſtened to it again in the ſame Poſture, bound and covered with the former *Plaiſter*, withered in three Days Time : Among other eaſy Remedies, a *Cere-cloth* of *Freſh-butter* and *Honey*, applied whilſt the *Wound* is green (eſpecially in Summer) and bound about with a *Thrum-rope* of moiſt *Hay*, and rubbed with *Cow-dung*, has healed many : But for rare and more tender Trees, after *pruning*, take purely refined *Tallow*, mingled and well hardened with a little *loamy* Earth and *Horſe-dung* newly made. CHAP. VII.

Dr. *Plot* ſpeaks of an *Elm* growing near the *Bowling-green* at *Magdalen-College*, quite round *disbark'd*, almoſt for a Yard near the Ground, which yet flouriſhes exceedingly ; upon which he dilates into an accurate Diſcourſe how it ſhould poſſibly be ; all Trees being held to receive their Nutrition between the *Wood* and the *Bark*, and to periſh upon their *Separation* ; this Tree being likewiſe *hollow* as a *Drum*, and its utmoſt Surface (where *decorticated*) dry and dead. The Solution of this *Phænomenon* (and to all Appearance, from the verdant Head) could not have been more *philoſophically* reſolved, than by the *Hypotheſis* there produced by the *Doctor*, who aſſures me, he was yet deliberating whether the *Tree* being *hollow*, it might not poſſibly proceed from ſome other *latent* Cauſe, as afterwards he diſcovered ; when having obtained Permiſſion to open the *Body* of it, he found another *Elm* letting down its *Stem* all the *Length* of this empty Caſe, and ſtriking *Root* when it came to the *Earth*, from whence it derived Nouriſhment, maintains a flouriſhing Top, and has (till now) paſſed for a little *Miracle*, as it ſtill may do for a Thing *extraordinary*, and rare enough ; conſidering not only its Paſſage, and how it ſhould come there, unleſs haply ſome of the *Samera*, or Seed, of the old *Tree* (when pregnant) ſhould have luckily fallen down within the hollow Pipe, or (as might be conjectured) from ſome Sucker ſpringing of a juicy *Root* : But the ſtrange incorporating of the ſuperior Part of the *Bole*, with the old hollow Tree which embraces it, not by any perceptible *Roots*, but as if it were but *one Body* with it, whilſt the reſt of the *vaginated* Stem touches no other Part of the whole *Cavity*, till it comes to the Ground, is ſurprizing. This being beſides very extraordinary, that a Tree, which naturally grows *taper* as it approaches the Top, ſhould ſwell, and become *bigger* there than it is below. But this the *Doctor* will himſelf render a more minute *Account* of in the next *Impreſſion* of that excellent *Piece* of his ; nor had I anticipated it on this Occaſion, but to let the World know (in the mean Time) how ingenuouſly

ready he is to acknowledge the *Miſtake*, as he has been ſucceſsful in diſcovering it.

Deer, *Conies* and *Hares*, by barking the *Trees* in hard *Winters*, ſpoil very many tender *Plantations*: Next to the utter deſtroying them, there is nothing better than to anoint that Part which is within their Reach, with *Stercus Humanum*, tempered with a little *Water*, or *Urine*, and lightly *bruſhed* on; this renewed after every great *Rain*: But a *cleanlier* than this, and yet which *Conies* and even *Cattle* moſt abhor, is to water or ſprinkle them with *Tanners Liquor*, *viz.* That which they uſe for dreſſing their *Hides*; or to waſh with ſlak'd *Lime* and *Water*, altogether as expedient: Alſo to tie *Thumb-bands* of *Hay* and *Straw* round them as far as they can reach.

8. *Moſs* (which is an *adnaſcent Plant*) is to be rubb'd and ſcrap'd off with ſome fit Inſtrument of *Wood*, which may not *excorticate* the *Tree*, or with a Piece of *Hair-cloth* after a ſobbing *Rain*; or by ſetting it on Fire with a Wiſp of Straw, about the End of *December*, if the Seaſon be dry, as they practiſe it in *Staffordſhire*; but the moſt infallible Art of *Emuſcation*, is taking away the *Cauſe* (which is ſuperfluous *Moiſture* in *clayie* and ſpewing Grounds) by dreſſing with *Lime*.

9. *Ivy* is deſtroyed by digging up the *Roots*, and looſening its Hold: And yet even *Ivy* itſelf (the Deſtruction of many fair *Trees*) if very old, and where it has long inveſted its Support, if taken off, does frequently kill the Tree, by a too ſudden Expoſure to the unaccuſtomed Cold: Of the *Roots* of *Ivy* (which with ſmall Induſtry may be made a beautiful Standard) are made curiouſly poliſh'd and fleck'd *Cups* and *Boxes*, and even *Tables* of great Value: *Miſſelto*, and other *Excreſcences* to be cut and broken off. But the *Fungi* (which prognoſticate a Fault in the *Liver* and *Entrails* of Trees, as we may call it) is remedied by *Abraſion*, *Friction*, *Interlucation*, and Expoſure to the Sun.

10. The *Bodies* of Trees are viſited with *Canker*, *Hollowneſs*, *Hornets*, *Earwigs*, *Snails*, &c.

11. The *Wind-ſhock* is a *Bruiſe* and *Shiver* throughout the *Tree*, though not conſtantly viſible, yet leading the *Warp* from ſmooth renting, cauſed by over-powerful *Winds*, when young, and perhaps by ſubtil *Lightnings*, by which the ſtrongeſt *Oaks* (and other the moſt robuſt Trees) are fain to ſubmit, and will be twiſted like a Rope of *Hemp*, and therefore of Old not uſed to kindle the *Sacrifice*. The ſame Injury Trees likewiſe often ſuffer by rigorous and piercing Colds and Froſts; ſuch as in the Year 1683, rived many ſtately *Timber-trees* from Head to Foot; which, as the Weather grew milder, cloſed again, ſo as hardly to be diſcerned; but were found at the *Felling* miſerably ſhatter'd, and good for little: The beſt Prevention is *Shelter*, Choice of Place for the Plantation, frequent *Shreading*, whilſt they are yet in their Youth. *Wind-ſhaken* is alſo diſcovered by certain *Ribs*, *Boils* and *Swellings* on the *Bark*, beginning at the Foot of the Stem, and Body of the Tree, to the Boughs. But againſt ſuch *Froſts* and *Fire* from Heaven there is no *Charm*.

12. *Cankers*, of all other Diſeaſes the moſt pernicious, corroding and eating to the Heart, and difficult to cure, whether (cauſed by ſome Stroak, or Galling, or by hot and burning Land) are to be *cut* out to the *Quick*, the Scars *emplaſtred* with *Tar* mingled with *Oil*, and over that

a thin Spreading of *Loam*; or elſe with *Clay* and *Horſe-dung*; but beſt with *Hogs-dung* alone, bound to it in a Rag; or by laying *Wood-aſhes*, *Nettles*, or *Fern* to the *Roots*, &c. You will know if the Cure be effected, by the Colour of the Wounds growing freſh and *green*, and not *reddiſh*: But if the *Gangreen* be within, it muſt be cured by *nitrous*, *ſulphureous* and drying Applications, and by no Means by any Thing of an *unctious* Nature, which is exitial to *Trees*: *Tar*, as was ſaid, only excepted, which I have experimentally known to preſerve *Trees* from the envenom'd Teeth of *Goats*, and other Injuries; the entire Stem ſmeared over, without the leaſt Prejudice, to my no ſmall Admiration: But for over-hot and torrid Land, you muſt *ſadden* the *Mould* about the *Root* with *Pond-mud*, and *Neats-dung*; and by *graffing Fruit-trees* on Stocks raiſed in the ſame Mould, as being more *homogeneous*. CHAP. VII.

13. *Hollowneſs* is contracted, when by Reaſon of the ignorant, or careleſs *Lopping* of a Tree, the Wet is ſuffered to fall *perpendicularly* upon a Part, eſpecially the *Head*, or any other Part or *Arms*, in which the *Rain* getting in, is conducted to the very Heart of the Stem and Body of the Tree, which it ſoon rots: In this Caſe, if there be ſufficient ſound *Wood*, cut it to the *Quick*, and cloſe to the Body, and cap the *hollow* Part with a *Tarpaulin*, or fill it with good ſtiff *Loam*, *Horſe-dung* and fine *Hay* mingled, or with well tempered *Mortar*, covering it with a Piece of *Tarpaulin*. This is one of the worſt of Evils, and to which the *Elm* is moſt obnoxious. Old broken Boughs, if very great, are to be cut off at ſome Diſtance from the *Body*, but the *ſmaller* cloſe.

14. *Hornets* and *Waſps*, *&c.* by breeding in the Hollowneſs of Trees, not only infect them, but will peel them round to the very *Timber*, as if *Cattle* had unbark'd them, as I obſerved in ſome goodly *Aſhes* at *Caſſiobury* (near the Garden of that late noble *Lord*, and Lover of Planting, the Earl of *Eſſex*) and are therefore to be deſtroyed, by ſtopping up their Entrances with *Tar* and *Gooſe-dung*, or by conveying the *Fumes* of *Brimſtone* into their *Cells*: *Cantharides* attack the *Aſh* above all other *Bobs* of the *Beetle* Kind: *Chafers*, *&c.* are to be ſhaken down and cruſhed, and when they come in Armies, (as ſometimes in extraordinary Droughts) they are to be driven away or deſtroyed with Smoaks; which alſo kills *Gnats* and *Flies* of all Sorts: Note, that the *Roſe-bug* never, or very ſeldom, attacks any other Tree whilſt that ſweet Buſh is in *Flower*. Whole Fields have been freed from *Worms* by the Reek and Smoak of *Ox-dung* wrapt in mungy Straw, well ſoak'd with ſtrong *Lie*.

15. *Earwigs* and *Snails* do ſeldom infeſt *Foreſt-trees*, but thoſe which are *Fruit-bearers*; and are deſtroyed by ſetting *Boards* or *Tiles* againſt the *Walls*, or the placing of *Neat-hoofs*, or any *hollow* Thing upon ſmall *Stakes*; alſo by enticing them into ſweet Waters, and by picking the *Snails* off betimes in the *Morning*, and rainy *Evenings*. I adviſe you to viſit your *Cypreſs-trees* on the firſt *Rains* in *April*; you ſhall ſometimes find them covered with young *Snails* no bigger than ſmall *Peaſe*. Laſtly, *Branches*, *Buds* and *Leaves* extreamly ſuffer from the *Blaſts*, *Jaundice* and *Caterpillars*, *Locuſts*, *Rooks*, *&c.* *Note*, that you ſhould viſit the *Boards*, *Tiles* and *Hoofs* which you ſet for the Retreat of thoſe *Inſects*, &c. in the *Heat* of the Day, to ſhake them out, and *kill* them.

16. The

16. The *blaſted* Parts of Trees (and ſo ſhould *Gum*) be *cut* away to the *Quick*; and to prevent it, *ſmoak them* in ſuſpicious *Weather*, by burning *moiſt Straw* with the *Wind*, or rather the dry and ſuperfluous *Cuttings* of *aromatic* Plants, ſuch as *Roſemary*, *Lavender*, *Juniper*, *Bays*, *&c.* I uſe to whip and chaſtiſe my *Cypreſſes* with a *Wand*, after their *Winter-burnings*, till all the *mortified* and *ſcorched* Parts fly off in *Duſt*, as long almoſt as any will *fall*, and obſerve that they *recover* and ſpring the better. *Mice*, *Moles* and *Piſmires* cauſe the *Jaundice* in Trees, known by the *Diſcolour* of the *Leaves* and *Buds*.

17. The *Moles* do much hurt, by making hollow Paſſages, which grow *muſty*; but they may be taken in *Traps*, and kill'd, as every *Woodman* knows: It is certain that they are driven from their *Haunts* by *Garlic* for a Time, and other heady Smells, buried in their Paſſages.

18. *Mice*, *Rats*, with *Traps*, or by ſinking ſome *Veſſel* almoſt level with the Surface of the Ground, the *Veſſel* half full of *Water*, upon which let there be ſtrew'd ſome *Hulls* or *Chaff* of *Oats*; alſo with *Bane*, Powder of *Orpiment* in *Milk*, and *Aconites* mixed with Butter: *Coperas* or *green Glaſs* broken with *Honey*: Morſels of *Sponge* chopped ſmall and fried in *Lard*, *&c.* are very fit Baits to deſtroy theſe nimble Creatures, which elſe ſoon will ruin a *Semination* of *Nuts*, *Acorns* and other Kernels in a Night or two, and rob the largeſt Beds of a Nurſery, carrying them away by *Thouſands* to ther cavernous *Magazines*, to ſerve them all the Winter: I have been told that *Hop-branches* ſtuck about Trees, preſerve them from theſe *thieviſh Creatures*.

19. Deſtroy *Piſmires* with ſcalding Water, and diſturbing their *Hills*, or rubbing the Stem with *Cow-dung*, or a Decoction of *Tithymale*, waſhing the infeſted Parts; and this will inſinuate, and chaſe them quite out of the *Chinks* and *Crevices*, without Prejudice to the *Tree*, and is a good Prevention of other *Infirmities*; alſo by laying *Soot*, *Sea-coal*, *Saw-duſt*, or Refuſe-*Tobacco* where they haunt, often renewed, eſpecially after *Rain*; for becoming moiſt, the Duſt and Powder harden, and then they march over it.

20. *Caterpillars*, by cutting off their *Webs* from the Twigs before the End of *February*, and burning them; the ſooner the better: If they be already *hatched*, waſh them off with *Water*, in which ſome of the *Caterpillars* themſelves, and *Garlick* have been bruiſed, or the *Juice* of *Rue*, Decoctions of *Colloquintida*, *Hemp-ſeed*, *Wormwood*, *Tobacco*, *Wallnut-ſhells* when green, with the Leaves of *Sage*, *Urine* and *Aſhes*, and the like Aſperſions. Take of two or three of the *Ingredients*, of each an Handful in two Pails of *Water*; make them boil in it half an Hour, then ſtrain the Liquor, and ſprinkle it on the Trees infected with *Caterpillars*, the *black Flea*, *&c.* in two or three Times it will clear them, and ſhould be uſed about the Time of *Bloſſoming*. *Another*, is to choak and dry them with *Smoak* of *Galbanum*, *Shoe-ſoals*, *Hair*; and ſome affirm, that planting of *Piony* near them, is a certain *Remedy*; but there is no *Remedy* ſo facile, as the *burning* them off with ſmall Wiſps of dry *Straw*, which in a Moment rids you.

21. *Rooks* do in Time, by pinching off the *Buds* and Tops of *Trees* for their *Neſts*, cauſe many *Trees* and *Groves* to decay: Their *Dung* propagates *Nettles* and *Weeds*, and choaks young *Seedlings*: They are to be ſhot, and their *Neſts* demoliſhed. The *Bullfinch* and *Titmouſe*

mouſe alſo eat off and ſpoil the *Buds* of *Fruit-trees*; prevented by *Clappers*, or caught in the *Wyre Mouſe-trap* with Teeth, and baited with a Piece of ruſty *Bacon*, alſo with *Lime-twigs*. But if *Cattle* break in before the Time, *conclamatum eſt*, eſpecially *Goats*, whoſe Mouths and Breath is *Poiſon* to *Trees*, they never thrive well after; and *Varro* affirms, if they but lick the *Olive-tree*, they become immediately Barren. And now we have mentioned *Barrenneſs*, we do not reckon *Trees* to be *ſterile*, which do not yield a fruitful Burden conſtantly every Year (as *Juniper* and ſome *Annotines* do) no more than of *pregnant Women*: Whilſt that is to be accounted a *fruitful* Tree which yields its *Product* every *ſecond* or *third* Year, as the *Oak* and moſt *Foreſters* do; no more may we conclude that any *Tree* or *Vegetable* are deſtitute of *Seeds*, becauſe we ſee them not ſo perſpicuouſly with our *naked* Eyes, by reaſon of their *Exility*, as with the niceſt Examination of the *Microſcope*. CHAP. VII.

22. Another Touch at the *Winds*; for though they cannot properly be ſaid to be *Infirmities* of *Trees*; yet they are amongſt the principal *Cauſes* that render *Trees* infirm. I know no ſurer Protection againſt them, than (as we ſaid) to *ſhelter* and *ſtake* them whilſt they are *young*, till they have well eſtabliſhed *Roots*; and with this *Caution*, that in caſe any goodly *Trees* (which you would deſire eſpecially to preſerve and redreſs) chance to be proſtrated by ſome impetuous and extraordinary *Storm*; you be not over-haſty to carry him away, or deſpair of him; (nor is it of any *ominous* Concern at all, but the contrary) *fauſti ominis*, as *Pliny* ſays; and gives many *illuſtrious* Inſtances: And as to other ſtrange and unuſual *Events* following the accidental *Subverſion* of *Trees*; concerning *Omens*; and that ſome are *portentous*, others *fortunate*, of which ſee * *Pierius*, ſpeaking of a *Garden* of the *Duke* of *Tuſcany*, belonging to a *Palace* of his at *Rome*, a little before the Death of Pope *Leo*; and before this, about the Time of our *Country-man*, Pope *Adrian* the IVth. Firſt then, let me perſwade you to *poll* him cloſe, and ſo let him lie ſome Time; for by this Means, many vaſt *Trees* have *raiſed* themſelves by the Vigour only of the remaining *Roots*, without any other Aſſiſtance; ſo as People have pronounced it *miraculous*, as I could tell you by ſeveral Inſtances, beſides what *Theophraſtus* relates, *Lib.* v. *Cap.* xix. of that huge *Platanus*, which roſe in one *Night* in his Obſervation; which puts me in Mind of what I remember the very learned *Critic Palmerius* affirms of an *Oak*, ſubverted by a late *Tempeſt* near *Breda* (where this old *Soldier* militated under *Prince Maurice*, at the *Town* when beſieged by the famous *Marq. Spinola*) which *Tree*, after it had lain proſtrate about two Months (the Side-Branches pared off) roſe up of itſelf, and flouriſhed as well as ever. Which Event was thought ſo extraordinary, that the People reſerved Sprigs and Boughs of it, as ſacred *Reliques*; and this he affirms to have ſeen himſelf. I take the more Notice of theſe *Accidents*, that none who have Trees blown down, where it may cauſe a deformed Gap in ſome *Avenue* near their Seats, may not altogether deſpair of their *Reſurrection*, with Patience and timely freeing them. And the like to this I find happened in more than one *Tree* near *Bononia* in *Italy*, *Anno* 1657. when of late a turbulent *Guſt* had almoſt quite eradicated a very large *Tract* of huge *Poplars*, belonging to the *Marchioneſs Elephantucca Spada*, that univerſally erected themſelves again, after they were beheaded, as they

* *Hierog.* l. 50.

BOOK II. lay even proſtrate. * What ſays the *Naturaliſt ? Proſtratas reſtitui plerunque, & quadam terræ cicatrice reviviſcere, vulgare eſt :* 'Tis familiar (ſays *Pliny*) in the *Platanus*, which are very obnoxious to the *Winds*, by reaſon of the Thickneſs of their Branches, which being cut off and diſcharged, reſtore themſelves. This alſo frequently happens in *Walnuts*, *Olive-trees*, and ſeveral others, as he affirms, *Lib.* xvi. *Cap.* xxxi. But we have farther Inſtances than theſe, and ſo very lately as that dreadful *Storm* happening 26 *Nov.* 1703. when after ſo many *thouſand Oaks*, and other *Timber-trees* were quite ſubverted, a moſt famous and monſtrous *Oak*, growing at *Epping* in *Eſſex* (blown down) raiſed itſelf, and withſtood that *Hurricane*. Theſe (amongſt many others) are the *Infirmities* to which *Foreſt-trees* are ſubject, whilſt they are ſtanding ; and when they are *fell'd*, to the *Worm* ; eſpecially if *cut* before the *Sap* be perfectly at reſt : But to *prevent* or cure it in the *Timber*, I commend this *Secret* as the moſt approv'd.

* See *Cap.* iv. *Lib.* ii. of a *Cypreſs.*

23. Let common yellow *Sulphur* be put into a *Cucurbit-Glaſs*, upon which pour ſo much of the ſtrongeſt *Aqua-fortis*, as may cover it three Fingers deep : *Diſtil* this to Dryneſs, which is done by two or three *Rectifications :* Let the *Sulphur* remaining in the Bottom (being of a blackiſh or ſad-red Colour) be laid on a *Marble*, or put into a *Glaſs*, where it will eaſily diſſolve into *Oil :* With this *anoint* what is either *infected*, or to be preſerved of *Timber*. It is a great and excellent *Arcanum* for tinging the *Wood* with no unpleaſant *Colour*, by no Art to be waſhed out ; and ſuch a Preſervative of all manner of *Woods*, nay, of many other Things, as *Ropes*, *Cables*, *Fiſhing-nets*, *Maſts* of *Ships*, &c. that it defends them from *Putrefaction*, either in *Waters* under or above the Earth, in the *Snow*, *Ice*, *Air*, *Winter* or *Summer*, &c. It were ſuperfluous to deſcribe the *Proceſs* of the *Aqua-fortis* ; it ſhall be ſufficient to let you know, that our common *Coperas* makes this *Aqua-fortis* well enough for our Purpoſe, being drawn over by a *Retort :* And for *Sulphur*, the *Iſland* of St. *Chriſtopers* yields enough (which hardly needs any *refining*) to furniſh the whole *World*. This *Secret* (for the *Curious*) I thought fit not to omit ; though a more compendious, three or four *Anointings* with *Linſeed-oil*, has proved very effectual : It was experimented in a *Walnut-Table*, where it deſtroyed Millions of *Worms* immediately, and is to be practiſed for *Tables*, *Tubes*, *Mathematical-Inſtruments*, *Boxes*, *Bedſteads*, *Chairs*, *Rarities*, &c. *Oil* of *Walnuts* will doubtleſs do the ſame, is ſweeter, and a better *Varniſh* ; but above all is commended *Oil* of *Cedar*, or that of *Juniper* ; whilſt *Oil* of *Spike* does the Cure as effectual as any.

But after all theſe ſweeping *Plagues* and *Deſtructions* inflicted on *Trees* (braving all *human Remedies*) ſuch *Froſts* as not many Years
* 1683. * ſince happened, left ſuch *Marks* of their *deadly* Effects, not ſparing the goodlieſt and moſt flouriſhing Trees, *Timber*, and other of the ſtouteſt Kind, as ſome *Ages* will hardly repair : Nay, 'twas obſerved, that the *Oak* in particular (counted the moſt Valiant and Sturdy of the whole *Foreſt*) was more prejudiced with this exceſſive *Cold*, and the *Drowth* of the Year enſuing, than any of the moſt nice and *tender Conſtitution :* Always here *excepting* (as to a *univerſal Strages*) the *Hurricane* of *Sept.* 1703. which begins the *Epocha* of the *Calamities*
1715. which have ſince followed, not only by the late *Tempeſt* about *Auguſt* laſt,

laſt, but by that ſurprizing *Blaſt*, accompanied doubtleſs with a *fiery Spirit*, which ſmote the moſt flouriſhing *Foreſters* and *Fruit-trees*, burning their *Buds* and *Leaves* to Duſt and Powder, not ſparing the very *Fruit*. This being done in a Moment, muſt be looked upon as a *Plague* not to be prevented: In the mean Time, that the Malignity proceed no farther, it may be adviſable to cut, and top the *Summities* of ſuch tender *mural* Trees, rare *Shrubs*, *&c.* as have moſt ſuffered, and are within Reach, rubbing off the Scorchings in order to new *Spring*.

There was in my Remembrance, certain *Prayers*, *Litanies* and *Collects*, ſolemnly uſed by the *Pariſh-Miniſter* in the *Field*, at the *Limits* of their *Perambulations* on the *Rogation-days*, from an antient and laudable *Cuſtom* of above one thouſand Years, introduced by *Avitus*, the pious *Biſhop* of *Vienna*, in a great *Dearth*, unſeaſonable Weather, and other Calamities (however in Tract of Time abuſed by many groſs *Superſtitions* and inſignificant *Rites*, in Imitation of the Pagan *Robigalia*) upon which Days (about the *Aſcenſion* and beginning of *Spring* eſpecially) *Prayers* were made, as well *deprecatory* of *epidemical Evils* (amongſt which *Blaſts* and *Smut* of *Corn* were none of the leaſt) as *Supplications* for propitious Seaſons, and *Bleſſings* on the *Fruits* of the Earth. Whether there was any peculiar *Office* (beſides thoſe for *Ember-Weeks*) appointed, I do not know: But the pious and learned *Biſhop* of *Wincheſter* [*Andrews*] has, in his *Devotions*, left us a *Prayer* ſo appoſite and comprehenſive for theſe *Emergencies*, that I cannot forbear the Recital.

REMEMBER, O Lord, to renew the Year with thy Goodneſs, and the Seaſon with a promiſing Temper: For the Eyes of all wait upon thee, O Lord: Thou giveſt them Meat; thou openeſt thy Hand, and filleſt all things living with thy Bounty. Vouchſafe therefore, O Lord, the Bleſſings of the Heavens, and the Dews from Above: The Bleſſings of the Springs, and the Deep from Beneath: The Returns of the Sun, the Conjunctions of the Moon: The Benefit of the riſing Mountains, and the laſting Hills: The Fulneſs of the Earth, and all that breed therein.

A Fruitful Seaſon,
Temperate Air,
Plenty of Corn,
Abundance of Fruits,
Health of Body, and
Peaceable Times,
Good, and wiſe Government,
Prudent Counſels,
Juſt Laws,
Righteous Judgments,
Loyal Obedience,
Due Execution of Juſtice,
Sufficient Store for Life,
Happy Births,
Good, and Fair Plenty,
Breeding and Inſtitution of Children:

That our Sons may grow up as the young Plants, and our Daughters may be as the poliſhed Corners of the Temple: That our Garners may be full and plenteous with all manner of Store: That our Sheep may bring forth Thouſands: That our Oxen may be ſtrong to labour: That there be no Decay; no leading into Captivity; no complaining in our Streets: But that every Man may ſit under his own Vine, and under his own Fig-tree, in Thankfulneſs to Thee; Sobriety and Charity to his Neighbour; and in whatſoever other Eſtate thou wilt have

Book III. *have him, therewith to be contented: And this for* JESUS CHRIST *his ſake, to whom be Glory for ever,* AMEN.

24. Thus hitherto I have ſpoken of *Trees*, their *Kinds*, and *Propagation* in particular; with ſuch *Preſcriptions* for the *Cure* and *Healing* their *Infirmities*, as from long and late *Experience* have been found moſt effectual. Now a *Word* or two concerning the *Laws* relating to *Foreſt-trees*, caſting ſuch other accidental *Leſſons* into a few *Aphoriſms*, as could not well be more regularly inſerted.

Laſtly, I ſhall *conclude* with ſome more ſerious *Obſervations*, in reference to the main *Deſign* and *Project* of this *Diſcourſe*, as it concerns the *Improvement* of the *Royal Foreſts*, and other *Timber-trees*, for the *Honour*, *Security*, and *Benefit* of the whole *Kingdom*; with an *Hiſtorical Account* of *Standing-Groves*, which will be the *Subject* of the next *Books*.

DENDROLOGIA.

BOOK III.

CHAP. I.

Of Coppices.

1. *Sylva Cedua* is (as *Varro* defines it) as well *COPPICE* to cut for *Fuel* as for uſe of *Timber*; and we have already ſhewed how it is to be *raiſed*, both by *ſowing* and *planting*. I ſhall only *here* add, that if in their firſt *Deſignation*, they be ſo laid out, as to grow for ſeveral *Falls*; they will both prove more *profitable* and more *delightful*: More *profitable*, becauſe of their annual *Succeſſion*; and more *pleaſant*, becauſe there will always remain ſome of them *ſtanding*; and if they be ſo caſt out, as that you leave ſtraight and even *Intervals*, of eighteen or twenty *Foot* for *Graſs*, between *Spring-wood* and *Spring-wood*, ſecurely *fenced* and preſerved; the *Paſtures* will lie both *warm*, and prove of exceeding *Delight* to the *Owner*. Theſe *Spaces* are likewiſe uſeful, and neceſſary for *Cart-way*, to fetch out the *Wood* at every *Fall*. There is not a more noble and worthy *Husbandry*, than is this, which rejects no ſort of *Ground* nor *Situation* (though facing the *Eaſt* is eſteemed beſt for both *Timber* and *Under-wood*) as we have abundantly ſhewed; ſince even the moſt *boggy* Places, may ſo be *drain'd* and caſt, as to yield their Increaſe by planting the *drier* Sorts upon the Ridges and Banks which you caſt up, where they will *thrive* exceedingly: And then *Willow*, *Sallow*, *Alder*, *Poplar*, *Sycamore*, *Black-Cherry*, &c. will ſhoot toſerably well on the lower and more *uliginous*; with this *Caution*, that for the *firſt two Years* they be kept diligently *weeded* and *cleanſed*, which is as neceſſary as *fencing* and guarding from *Cattle*. Our ordinary *Coppices* are chiefly upon *Haſle*, or the *Birch*; but if amongſt the other Kinds, ſtore of *Aſh* (which I moſt prefer, a ſpeedy and erect Growth)

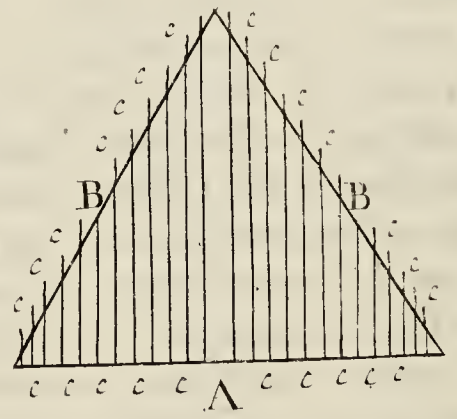
Growth) *Cheſnut*, *Sallow*, and *Sycomore*, (at leaſt *one* in *four*) were ſprinkled in the *Planting*, the *Profit* would ſoon diſcover a Difference, and will recompence the Induſtry. Others adviſe us to plant Shoots of *Sallow*, *Willow*, *Alder*, and all the *ſwift* growing Trees, being of ſeven Years Growth, *ſloping* off both the Ends towards the Ground, to the Length of a *Billet*, and burying them a reaſonable Depth in the Earth. This will cauſe them to put forth ſeven or eight *Branches*, each of which will become a *Tree* in a ſhort Time, eſpecially if the Soil be moiſt. The neareſt *Diſtance* for theſe *Plantations* ought never to be leſs than *five* Foot at firſt, ſince every *Felling* renders them wider for the Benefit of the *Timber*, even to *thirty* and *forty* Foot, in five or ſix *Fellings*.

2. Though it be almoſt impoſſible for us to preſcribe at what *Age* it were beſt *Husbandry* to fell *Copſes* (as we at leaſt call *beſt Husbandry*) that is, for moſt and greateſt Gain; ſince the *Markets*, and the *Kinds* of *Wood*, and emergent *Uſes* do ſo much govern; yet *Copſes* are ſometimes of a competent Stature after *eight* or *nine* Years from the *Acorn*; and ſo every *eight* or *ten* Years ſucceſſively, will riſe better and better: But this had need be an extraordinary Ground, otherwiſe you may do well to allow them *twelve* or *fifteen* to fit them for the *Ax*; but thoſe of *twenty* Years ſtanding are better, and far advance the Price, eſpecially if *Oak*, and *Aſh*, and *Cheſnut* be the chief Furniture; and be ſure you ſhall loſe nothing by this Patience; ſince all Accidents conſidered, the Profit ariſing from *Copſes* ſo managed (be the Ground almoſt never ſo poor) ſhall equal, if not exceed, what is uſually made by the *Plough* or *Grazing*. Some of our old *Clergy* Spring-Woods heretofore have been let reſt till twenty-five or thirty Years, and have prov'd highly worth the Attendance; for by that Time, even a *Seminary* of *Acorns*, will render a conſiderable Advance, as I have already exemplified in the *Northamptonſhire* Lady. And if *Copſes* were ſo divided, as that every Year there might be ſome *fell'd*, it were a continual, and a preſent Profit: Seventeen Years Growth affords a tolerable *Fell*; ſuppoſing the *Copſe* of ſeventeen *Acres*, one *Acre* might be yearly fell'd for ever; and ſo more, according to Proportion: but though the ſeldom *Fall* yields the more *Timber*, yet the *frequent* makes the *Under-wood* the thicker; therefore at ten or twelve Years Growth (ſays Mr. *Cook*) in ſhallow Ground, and fourteen in deeper. If many *Timber-trees* grow in your *Copſes* which are to be cut down, fell both *them*, and the *Under-wood* as near the Ground as may be; but this is to be underſtood where the *Wood* is very thick; otherwiſe, 'tis adviſable to ſtock up the thinner, eſpecially in great *Timber*, and to ſet in the Holes, *Elm*, *Cherry*, *Poplar*, *Sallow*, *Service*; and ſo theſe Trees, which are apt to grow from the Running-root, thicken the *Wood* exceedingly; whilſt the very *Roots* will pay for the Grubbing, and yield you ſome Feet of the beſt *Timber*; whereas being let ſtand, nothing would have grown. If the Ground be a ſhallow Soil, forbear filling the *Holes* quite, but ſet ſome Running-wood in the looſened Earth, and the Ends of the old Roots being cut, will furniſh the Sides of the Holes ſpeedily. In thin *Copſes* 'tis profitable to *lay* ſome Boughs athwart, which will be rooted to Advantage againſt next Fall. All rotten *Stubs* among our Under-woods ſhould be extirpated, as making way for *Seedlings*, and young Roots to ſpring and run: The cutting, ſlanting, ſmooth and cloſe, is of great Importance; and frequent Fel-

Book III. ling gives *Way* and *Air* to the ſubnaſcent *Seedlings*, and the reſt will make luſty *Shoots*.

3. As to what *Numbers* and *Scantlings* you are to leave on every *Acre*, the *Statutes* are our general *Guides*, at leaſt the *legal*. It is a very ordinary *Copſe*, which will not afford three or four *Firſts*, that is, *Beſts*; fourteen *Seconds*, twelve *Thirds*, eight *Wavers*, *&c.* according to which *Proportions*, the Sizes of young Trees in *Copſing*, are to ſucceed one another. By the *Statute* of 35 *Hen.* VIII. in *Copſes*, or Under-woods felled at twenty-four Years Growth, there were to be left twelve *Standils*, or *Stores* of *Oak*, upon each *Acre*; in Defect of ſo many *Oaks*, the ſame Number of *Elms*, *Aſh*, *Aſp* or *Beech*; and they to be ſuch, as are of likely Trees for *Timber*, and of ſuch as have been ſpared at ſome former *Felling*, unleſs there were none; in which Caſe, they are to be *then* left, and ſo to continue without *Felling*, till they are *ten Inch Square* within a *Yard* of Ground. *Copſes* above this Growth *felled*, to leave twelve great *Oaks*; or in Defect of them, other *Timber-trees* (as above) and ſo to be left for twenty Years longer, and to be encloſed ſeven Years.

4. In Sum, you are to ſpare as many likely *Trees* for *Timber* as with Diſcretion you can. In the mean Time, there are ſome who find it not ſo profitable, to permit ſo many *Timber-trees* to ſtand in the Heart of *Copſes*, but on the Skirts, and near the Edges, where their Branches may freely ſpread, and have Air, without dripping and annoying the *ſubnaſcent* Crop: Nor ſhould they be ſhread, which commonly makes them grow *knotty*. This is a *Note* of the ingenious Mr. *Nourſe*, as well as what he reports of a worthy Gentleman in *Glouceſterſhire*, to demonſtrate how *one Acre* of *Copſe-wood* on a *Plain*, may contain as much *Wood* as *two Acres* on the Side of an *Hill*; though that of the *Plain*, as alſo the Ground on the Side of the *Hill*, might ſeem both alike planted, and as thick in Appearance.



A, *Is the* Plain *of the* Baſis, B B *the two Sides of the* Triangle, *repreſenting the Sides of the* Mount, c c c c *the* Tops *of the* Trees, *ſhooting from the* Plain *and the Sides.*

For comparing the Order in which Trees uſually grow on a *Plain*, with thoſe on a *Surface*, they will appear ſtanding exactly in ſuch a Figure: So that if the Mountain be high and ſteep, *one Acre* at the Bottom may contain four Times the Quantity of *Wood* as an *Acre* on the Side of an Hill, which is worth the Conſideration.

Now as to the *Felling* (beginning at one Side, that the *Carts* may enter without Detriment to what you leave ſtanding) the *Under-wood* may

may be cut from *January*, at the lateſt, till *Mid-March* or *April*; or from *Mid-September*, till near the End of *November*; ſo as all be avoided by *Midſummer* at the lateſt, and then *fenced*: (where the *Rows* and *Bruſh* lie longer unbound or made up, you endanger the Loſs of a *ſecond Spring*) and not to ſtay ſo long as uſually they are a clearing, that the *Young*, and the *Seedlings* may not ſuffer the leaſt Interruption; and if the *Winter* previous to your felling *Copſes*, you preſerve them well from *Cattle*, it will recompence your Care.

5. It is adviſed not to cut off the *Browſe-wood* of *Oaks* in *Copſes*, but to ſuffer it to fall off, as where *Trees* ſtand very cloſe, it uſually does: I do not well comprehend why yet it ſhould be *ſpared* ſo long.

6. When you eſpy a *Cluſter* of *Plants* growing as it were all in a Bunch, it ſhall ſuffice that you preſerve the faireſt *Sapling*, cutting all the reſt away. And if it chance to be a *Cheſnut*, *Service*, or like profitable *Tree*, clear it from the Droppings and Incumbrances of other *Trees*, that it may thrive the better: Then, as you paſs along, *prune* and *trim* up all the young *Wavers*, covering ſuch *Roots* as lie bare and expoſed, with freſh Mould. There are ſome who direct the lopping of young *Oaks* at a competent Diſtance from the *Stem*, and that while the *Wounds* are healing, this would advantage the *Under-wood*; but I cannot ſay it would be without Prejudice to the *Timber*.

7. Cut not above *half* a *Foot* from the *Ground*, nay the cloſer the better, and that to the *South*, ſlope-wiſe; *ſtripping* up ſuch as you ſpare from their extravagant *Branches*, *Water-boughs*, *&c.* that hinder the Growth of others: Always remembring (before you ſo much as enter upon this Work) to preſerve ſufficient *Plaſh-pole* about the *Verge* and Bounds of the *Copſe* for *Fence* and *Security* of what you leave; and for this, ſomething leſs than a *Rod* may ſuffice: Then *raking* your *Wood* clear of *Spray*, *Chips* and all *Incumbrances*, ſhut it up from the *Cattle*, the longer the better.

8. By the *Statute*, Men were bound to encloſe *Copſes* after *Felling*, of or under fourteen Years Growth, for four Years: Thoſe above fourteen Years Growth, to be ſixteen Years encloſed; and for *Woods* in *Common*, a fourth Part to be ſhut up; and at *Felling*, the like Proportion of great *Trees* to be left, and ſeven Years *encloſed*: This was enlarged by 13 *Eliz.* Your *Elder Under-woods* may be *grazed* about *July*: But for a general *Rule*, newly-weaned *Calves* are the leaſt noxious to newly cut *Spring-woods*, where there is abundance of *Graſs*; and ſome ſay, *Colts* of a Year old; but then the *Calves* muſt be driven out at *May* at fartheſt, though the *Colts* be permitted to ſtay a while longer: But of this, every Man's Experience will direct him; and ſurely, the later you admit *Beaſts* to *graze*, the better. For the *Meaſure* of *Fuel*, theſe *Proportions* were to be obſerved.

9. Statutable *Billet* ſhould hold *three Foot* in *Length*, and *ſeven* Inch and half *Compaſs*; *ten* or *fourteen*, as they are counted for *one*, *two* or *three*, *&c.* A *Stack* of *Wood* (which is the *Boughs* and *Offal* of the *Trees* to be converted to *Char-coal*) is four *Yards* long, *three Foot and half* high (in ſome Places but a *Yard*) and as much *over*: In other Places, the *Cord* is *four Foot* in *Height*, and *four Foot over*; or (to ſpeak more *geometrically*) a *Solid* made up of three *Dimenſions*, four Foot high, four Foot broad, and eight Foot long; the *Content* one hundred and twenty-eight *cubick* Feet. *Faggots*, ought to be a full

BOOK III. *Yard* in *Length*, and *two Foot* in *Circumference*, made *round*, and not *flat*; for ſo they contain leſs *Fuel*, though equal in the Bulk appearing. But of theſe *Particulars*, when we come to ſpeak expreſly of *Fuel*.

10. In the mean Time it were to be wiſhed, that ſome approved *Experiments* were ſedulouſly tried (with the Advice of skilful and ingenious *Phyſicians*) for the making of *Beer* without *Hops*; as poſſibly with the white *Marrubium* (a Plant of ſingular Virtue) or with dried *Heath-tops* (*viz.* that ſort which bears no Berries) or the like, far more wholſome, and leſs bitter than either *Tamarisk*, *Carduus* or *Broom*, which divers have eſſay'd; it might prove a Means to ſave a world of *Fuel*, and in divers Places young *Timber* and *Copſe-wood*, which is yearly ſpent for *Poles*, eſpecially in Countries where Wood is very precious.

Note, That the *Wood-land* Meaſure, by *Statute*, is computed after *eighteen Foot* the *Perch*.

CHAP. II.

Of Pruning.

THERE could nothing certainly be more neceſſary, in order to *Pruning*, than the Knowledge of the *Courſe* and *Nature* of the *Sap*; which not being as yet ſo univerſally agreed on (after innumerable Trials and Experiments) leads our *Arborators* into many Errors and Miſtakes: I have in this *Foreſt Work* occaſionally recited the various *Opinions* of ſeveral, leaving them to the Determination of the Learned and Judicious, as a conſiderable Part of *Natural Philoſophy*; Dr. *Grew*, *Malphigius*, *De la Quinteny*, and what is found diſperſed in the *Philoſophical Tranſactions* by our *Plant Anatomiſts*, without charging this Chapter with Repetitions: And the ſame I have done likewiſe as to *Aſtrological Obſervations*, *Poſitions* of the *Stars* and *Planetary Configurations*, *Exhalations* and *Dominant Power*; though, in Compliance to Cuſtom, I now and then forbear to abdicate our Country Planter's *Goddeſs*; contenting my ſelf with the wholſomeneſs of the *Air* we breath in, and the Goodneſs of the *Soil*: I ſhall therefore in the firſt Place ſpeak of the *Manual* Operation of *Pruning*, and other Inſtructions as they afterwads occur.

1. *Putatio*; *Pruning* I call all Purgation of *Trees* in general, from what is ſuperfluous: The *Antients* found ſuch Benefit in *Pruning*, that they feigned a *Goddeſs* preſided over it, as *Arnobius* tells us: And in Truth, it is in the diſcreet Performance of this *Work*, that the Improvement of our *Timber* and *Woods* does as much conſiſt as in any Thing whatſoever. A skilful *Planter* ſhould therefore be early at this Work: Shall old *Gratius* give you *Reaſon* and *Direction?* And his *Interpreter* thus in *Engliſh?*

[a] *Twigs*

[2] *Twigs of themſelves never riſe ſtraight and high,*
And Under-woods are bow'd as firſt they ſhoot.
Then prune *the* Boughs, *and* Suckers *from the Root*
Diſcharge. The leavy Wood fond Pity tires.
After, when with tall Rods the Tree aſpires,
And the round Staves to Heaven advance their Twigs,
Pluck all the Buds, and ſtrip off all the Sprigs:
Theſe Iſſues vent what Moiſture ſtill abound,
And the Veins unemploy'd grow hard and ſound. WASE.

2. For 'tis a Miſery to ſee how our faireſt *Trees* are defaced and mangled by unskilful *Wood-men*, and miſchievous *Bordurers*, who go always armed with ſhort *Hand-bills*, hacking and chopping off all that comes in their Way; by which our *Trees* are made full of *Knots*, *Stubs*, *Boils*, *Cankers*, and deformed Bunches, to their utter Deſtruction: *Good Husbands* ſhould be aſhamed of it; though I would have no *Wood-man* pretend to be without all his neceſſary *Furniture*, when he goes about this *Work*; which I (once for all) reckon to be the *Hand-bill*, *Hatchet*, *Hook*, *Hand-ſaw*, an excellent *Pruning-knife*, broad *Chizel* and *Mallet*, all made of the beſt *Steel* and kept ſharp; and thus he is provided for greater, or more gentle *Executions*, *Purgations*, *Reciſions* and *Coercions*; and it is of main Concern, that the proper and effectual *Tool* be applied to every *Work*, ſince heavy and rude *Inſtruments* do but *mangle* and *bruiſe* tender *Plants*; and if they be too ſmall, they cannot make *clear* and *even Work* upon great *Arms* and *Branches*: The *Knife* is for *Twigs* and *Spray*; the *Chizel* for larger *Arms*, and ſuch *Amputations* as the *Ax* and *Bill* cannot well operate upon. As much to be reprehended are thoſe who either begin this Work at unſeaſonable Times, or ſo maim the poor *Branches*, that either out of Lazineſs, or want of Skill, they leave moſt of them *Stubs*, and inſtead of cutting the *Arms* and *Branches* cloſe to the *Bole*, hack them off a Foot or two from the Body of the *Tree*, by which Means they become *hollow* and *rotten*, and are as ſo many *Conduits* to receive the *Rain* and the *Weather*, which conveys the Wet to the very *Matrix* and *Heart*, deforming the whole *Tree* with many ugly *Botches*, which ſhorten its Life, and utterly mars the *Timber*: I know Sir *H. Platt* tells us, the *Elm* ſhould be ſo *lopped*, but he ſays it not of his own *Experience* as I do. And here it is that I am (once for all) to warn our diſorderly *Husband-men* from coveting to let their *Lops* grow to an extraordinary Size before they take them off, as conceiving it furniſhes them with the more *Wood* for the Fire; not conſidering how ſuch gaſhly Wounds mortally affect the whole Body of the *Tree*, or at leaſt does ſo decay their Vigour, that they hereby loſe more in *one Year* than the *Lop* amounts to, ſhould they pare them off ſooner, and when the *Scars* might be covered: In the mean while, that young *Oaks* proſper much in Growth, by timely *Pruning*, the induſtrious Mr. *Cooke* obſerves;

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[a] Nunquam ſponte ſua procerus ad aera termes
Exiit, inque ipſa curvantur ſtirpe geniſtæ.
Ergo age luxuriam primo fœtuſque nocenteis
Detrahe. Frondoſas gravat indulgentia ſilvas.
Poſt ubi proceris generoſa ſtirpibus arbor
Se dederit, teretéſque ferent ad ſidera virgæ,
Stringe notas circum, & gemmanteis exige verſus.
His, ſi quis vitium nociturus ſufficit humor,
Viſceribus fluit, & venas durabit inertes.
Gra. Fal. Cynæget.

Book III. whereas ſome other Trees, as the *Horn-beam*, &c. though they will bear conſiderable *Lops*, when there's only the *Shell* of the Tree ſtanding, yet it is much to its Detriment; eſpecially to the *Aſh*, which if once it comes to take Wet by this Means, rarely produces more *Lop* to any Purpoſe; above all, if it decay in the Middle, when 'tis fitter for the *Chimney*, than to ſtand and cumber the Ground: The ſame may be pronounced of moſt *Trees*, which would not perhaps become *Dotards* in many Ages, but for this covetous Barbarity and unskilful handling.

3. By this *Animadverſion* alone it were eaſy for an ingenious Man to underſtand how *Trees* are to be governed; which is in a Word, by ſparing great *Lops*, cutting *clean*, *ſmooth* and *cloſe*, making the Stroke *upward*, and with a ſharp *Bill*, ſo as the Weight of an untractable *Bough* do not *ſplice* and carry the *Bark* with it, which is both dangerous and unſightly. The *Oak* will ſuffer it ſelf to be made a *Pollard*, that is, to have its *Head* quite cut off, and it may be good for *Maſt*, if not too much pruned, but not for *Timber*: But the *Elm* ſo treated, will periſh to the *Foot*, and certainly become hollow at laſt, if it eſcape with *Life*.

4. The proper Seaſon for this Work, is for old *Trees earlier*, for young *later*, as a little after the Change in *January* or *February*, ſome ſay in *December*, the *Wind* in a gentle Quarter:

> [a] *Then ſhave their Locks, and cut their branchy Treſs,*
> *Severely now, luxuriant Boughs repreſs.*

But this ought not to be too much in young *Fruit-trees*, after they once come to form a handſome *Head*; in which Period you ſhould but once pare them over about *March*, to cover the *Stock* the ſooner, if the *Tree* be very choice: To the *aged*, this is plainly a renewing of their *Youth*, and an extraordinary Refreſhment, if taken in Time, and that their *Arms* be not ſuffered to grow too great and large; in which Caſe, the Member muſt not be amputated too near the Body, but at ſome Diſtance —— *ne pars ſincera trahatur:* And remember to cut ſmooth, and ſloping upwards if upright Boughs, otherwiſe downwards; and be ſure to *emplaſter* great Wounds to keep out the Wet, and haſten the covering of the *Bark:* Beſides, for *Interlucation*, exuberant *Branches*, *& ſpiſſæ nemorum comæ*, where the *Boughs* grow too thick, and are cumberſome, to let in the *Sun* and *Air*; this is of great Importance, and ſo is the ſedulous taking away of *Suckers*, *Water-boughs*, *Fretters*, &c. And for the Benefit of tall *Timber*, the due ſtripping up the *Branches*, and rubbing off the *Buds* to the Heights you require: Yet ſome do totally forbear the *Oak*, eſpecially if aged, obſerving that they much exceed in Growth ſuch as are pruned; and in Truth, ſuch *Trees* as we would leave for *Shade* and Ornament, ſhould be ſeldom cut; but the *Brouſe-wood* cheriſhed and preſerved as low towards the Ground as may be, for a more venerable and ſolemn *Shade*; and therefore I did much prefer the *Walk* of *Elms* at St. *James*'s *Park*, as it lately grew *branchy*, intermingling their reverend Treſſes, before the preſent trimming them up ſo high; eſpecially, ſince I fear the *Remedy* comes too late to ſave their Decay (could it have been avoided) if the Amputati-

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[a] ——— Tunc ſtringe comas, tunc brachia tonde:
——— Tunc denique dura
Exerce imperia, & ramos compeſce fluentes. *Georg.* ii.

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ons of ſuch over-grown Parts as have been cut off, ſhould not rather accelerate it, by expoſing their large and many *Wounds* to the Injuries of the *Weather*, which will endanger the *rotting* of them, beyond all that can be applied by *Tar*, or otherwiſe, to protect them: I do rather conceive their Infirmities to proceed from what has not long ſince been abated of their large ſpreading *Branches*, to accommodate with the *Mall*; as any one may conjecture by the great Impreſſion which the Wet has already made in thoſe incurable Scars, that being now multiplied, muſt needs the ſooner impair them; the *Roots* having likewiſe infinitely ſuffered by many Diſturbances about them. In all Events this *Walk* might have enjoyed its goodly Canopy, with all their branchy Furniture for ſome *Ages* to come, ſince 'tis hardly one that firſt they were planted: But this Defect is providently and nobly ſupplied by their Succeſſors of the *Lime-trees*, which will ſooner accompliſh their Perfection, by taking away the *Cheſnut-trees*, which will elſe do them Prejudice.

But it is now (and never till now) that thoſe *Walks* and *Ranks* of *Trees*, and other Royal Amenities, are ſure to proſper, whilſt they are entirely under the Care and Culture of the moſt induſtrious and knowing Mr. *Wiſe*, to whom, and to his Partner Mr. *London*, I not only acknowledge my ſelf particularly obliged, but the whole Nation, for what they have contributed to the ſweeteſt, uſeful, and moſt innocent Diverſions of Life, *Gardens* and *Plantations*.

One ſhould be cautious in heading *Timber-trees*, eſpecially the *pithy*; unleſs where they grow very crooked, in which Caſe abate the *Head* with an upward Sloop, and cheriſh a leading Shoot: The *Beech* is very tender of its Head.

It is by the Diſcreet leaving the *Side-boughs* in convenient Places, ſparing the ſmaller, and taking away the bigger, that you may advance a *Tree* to what determined Height you deſire: Thus, bring up the *Leader*, and when you would have that ſpread and break out, cut off all the *Side-boughs*, and eſpecially at *Midſummer*, if you eſpy them breaking out. Young *Trees* may every Year be pruned, and as they grow older at longer Intervals, as at three, five, ſeven or ſooner, that the *Wounds* may recover, and nothing be deformed.

Ever-greens do not well ſupport to be *decapitated*; Side-boughs they freely ſpare in *April*, and during the *Spring*; and if you cut at firſt *two or three Inches* from the Body, and the next *Spring* after cloſe to the *Stem*, covering it with *Wax*, or well tempered *Clay*, the moſt tender may ſuffer ſuch Amputations without Prejudice.

Note, that the ſide and collateral Branches of the *Fir* cut, or broken off, ſpring no more; and though the *Tops* ſometimes do, yet they never proſper to beautiful and erect *Heads*, in which conſiſts the Grace of that beautiful *Tree*.

Another Caution is, that you be ſure to cut off ſuch tender Branches to the Quick, which you find have been cropt by *Goats*, or any other *Cattle*, who leave a Drivel where they bite; which not only infects the *Branches*, but ſometimes endanger the whole; the Reaſon is, for that the natural Sap's Recourſe to the *Stem*, communicates the *Venom* to all the reſt, as the whole Maſs and Habit of animal *Blood* is by a *Gangreen*, or *venereal* Taint.

5. Divers other Precepts of this Nature I could here enumerate, had not the great *Experience*, faithful and accurate *Deſcription* how this neceſſary

Book III. neceſſary *Work* is to be performed, ſet down by our Country-man honeſt *Lawſon* (*Orchards*, *Cap.* xi.) prevented all that the moſt *Inquiſitive* can ſuggeſt: The Particulars are ſo ingenious, and highly material, that you will not be diſpleaſed to read them in his own Stile and *Character*.

All Ages (ſaith he) by Rules and Experience do conſent to a Pruning and Lopping of Trees; yet have not any that I know deſcribed unto us (except in dark and general Words) what, or which are thoſe ſuperfluous Boughs which we muſt take away; and that is the moſt chief and moſt needful Point to be known in Lopping: And we may well aſſure our ſelves (as in all other Arts, ſo in this) there is a Vantage and Dexterity by Skill; an Habit by Practice out of Experience, in the Performance hereof, for the Profit of Mankind: Yet do I not know (let me ſpeak it with Patience of our cunning Arboriſts) any Thing within the Compaſs of human Affairs ſo neceſſary, and ſo little regarded; not only in Orchards, but alſo in all other Timber-trees, where or whatſoever.

Now to our Purpoſe:

How many Foreſts and Woods, wherein you ſhall have for one lively thriving Tree, four (nay ſometimes twenty-four) evil-thriving, rotten and dying Trees, even whiles they live; and inſtead of Trees, Thouſands of Buſhes and Shrubs! what Rottenneſs! what Hollowneſs! what dead Arms! withered Tops! curtail'd Trunks! what Loads of Moſs! drooping Boughs and dying Branches ſhall you ſee every where! and thoſe that in this ſort are in a manner all unprofitable Boughs, cankered Arms, crooked, little and ſhort Boals. What an infinite Number of Buſhes, Shrubs and Scrags of Haſels, Thorns, and other unprofitable Wood, which might be brought by dreſſing to become great and goodly Trees! Conſider now the Cauſe.

The leſſer Wood hath been ſpoiled with careleſs, unſkilful and untimely ſtowing; and much alſo of the great Wood. The greater Trees at the firſt riſing have filled and overladen themſelves with a Number of waſtful Boughs and Suckers, which have not only drawn the Sap from the Boal, but alſo have made it knotty, and themſelves, and the Boal moſſy, for want of dreſſing; whereas, if in the Prime of Growth, they had been taken away cloſe, all but one Top, and clean by the Bulk, the Strength of all the Sap ſhould have gone to the Bulk, and ſo he would have recovered and covered his Knots, and have put forth a fair, long and ſtreight Body, for Timber profitable, huge great of Bulk, and of infinite Laſt.

If all Timber-trees were ſuch (will ſome ſay) how ſhould we have crooked Wood for Wheels, Coorbs, &c.

Anſw. Dreſs all you can, and there will be enough crooked for thoſe Uſes.

More than this, in moſt Places they grow ſo thick, that neither themſelves, nor Earth, nor any Thing under or near them can thrive; nor Sun, nor Rain, nor Air can do them, nor any Thing near, or under them, any Profit or Comfort.

I ſee a Number of Hags, where out of one Root you ſhall ſee three or four (nay more, ſuch is Mens unſkilful Greedineſs, who deſiring many, have none good) pretty Oaks, or Aſhes ſtreight and tall; becauſe the Root at the firſt Shoot gives Sap amain: But if one only of them might

might be ſuffered to grow, and that well and cleanly pruned, all to his very Top, what a Tree ſhould we have in Time? And we ſee by thoſe Roots continually and plentifully ſpringing, notwithſtanding ſo deadly wounded, what a Commodity ſhould ariſe to the Owner, and the Commonwealth, if Wood were cheriſhed and orderly dreſſed. The waſte Boughs cloſely and skilfully taken away, would give us ſtore of Fences and Fuel; and the Bulk of the Tree in Time would grow of huge Length and Bigneſs: But here (methinks) I hear an unskilful Arboriſt ſay, that Trees have their ſeveral Forms, even by Nature; the Pear, the Holly, the Aſp, &c. grow long in Bulk, with few and little Arms: The Oak by Nature broad, and ſuch like. All this I grant: But grant me alſo, that there is a profitable End and Uſe of every Tree, from which if it decline (though by Nature) yet Man by Art may (nay muſt) correct it. Now other End of Trees I never could learn, than good Timber, Fruit much and good, and Pleaſure: Uſes Phyſical hinder nothing a good Form. CHAP II.

Neither let any Man ever ſo much as think, that it is unprofitable, much leſs unpoſſible, to reform any Tree of what Kind ſoever: For (believe me) I have tried it: I can bring any Tree (beginning betime) to any Form. The Pear and Holly may be made to ſpread, and the Oak to cloſe.

Thus far the good *Man* out of his *eight* and *forty Years Experience* concerning *Timber-trees*: He deſcends then to the *Orchards*; which, becauſe it may likewiſe be acceptable to our induſtrious *Planter*, I thus contract.

6. Such as ſtand for *Fruits* ſhould be *parted* from within two Foot (or thereabouts) of the Earth; ſo high, as to give liberty to dreſs the *Root*, and no higher; becauſe of exhauſting the *Sap* that ſhould feed his *Fruit*: For the *Boal* will be firſt, and beſt ſerved and fed, being next to the *Root*, and of greateſt Subſtance. Theſe ſhould be *parted* in two, three, or four *Arms*, as your *Graffs* yield *Twigs*; and every *Arm* into two or more *Branches*, every *Branch* into his ſeveral *Cyons*; ſtill ſpreading by equal Degrees; ſo as his loweſt Spray be hardly without the Reach of a Man's *Hand*, and his *higheſt* not paſt two Yards higher: That no *Twig* (eſpecially in the midſt) touch his Fellow; let him ſpread as far as his Liſt, without any Maſter-bough, or Top, equally; and when any fall lower than his Fellows (as they will with weight of *Fruit*) eaſe him the next Spring of his ſuperfluous *Twigs*, and he will riſe: When any mount above the reſt, *top* him with a *Nip* between your *Fingers*, or with a *Knife*: Thus reform any *Cyon*; and as your *Tree* grows in *Stature* and *Strength*, ſo let him riſe with his Tops, but *ſlowly*, and eaſily, eſpecially in the midſt, and equally in Breadth alſo; following him upward, with lopping his Under-growth, and *Water-boughs*, keeping the ſame Diſtance of *two Yards*, not above *three*, in any wiſe, betwixt the loweſt and higheſt *Twigs*.

1. Thus ſhall you have handſome, clear, healthful, great and laſting *Trees*.

2. Thus will they grow ſafe from *Winds*, yet the *Top* ſpreading.

3. Thus ſhall they bear much *Fruit*; I dare ſay, one as much as five of our common *Trees*, all his *Branches* loaden.

4. Thus ſhall your *Boal*, being low, defraud the *Branches* but little of their *Sap*.

5. Thus ſhall your *Trees* be eaſy to *dreſs*, and as eaſy to gather the *Fruit* from, without bruiſing the *Cyons*, &c.

6. The fitteſt Time of the *Moon* for the *Pruning* is (as of *Graffing*) when the *Sap* is ready to ſtir (not proudly ſtirring) and ſo to cover the *Wound*; and here, for the Time of Day, we may take *Columella*, *Frondem medio die arborator ne cædito*, Lib. xi. Old Trees would be pruned before young Plants: And *note*, that whereſoever you take any Thing away, the *Sap* the next *Summer* will be putting; be ſure therefore when he puts to bud in any unfit Place, you *rub* it off with your Finger; and if this be done for three or four Years ſtill at *Mid-ſummer*, it will at laſt wholly clear the Side-boughs, and exalt the Growth of the *Stem* exceedingly; and this is of good Uſe for *Elms*, and ſuch *Trees* as are continually putting forth where they have been pruned: Thus begin timely with your *Trees*, and you may bring them to what Form you pleaſe. If you deſire any *Tree* ſhould be taller, let him *break*, or divide higher: This for *young Trees*. The *Old* are reformed by curing of their *Diſeaſes*, of which we have already diſcourſed. There is this only to be conſidered, in reference to *Foreſters*, out of what he has ſpoken concerning *Fruit-trees*; that (as has been touch'd) where *Trees* are planted for Shadow, and mere *Ornament*, as in *Walks* and *Avenues*, the *Brouſe-wood* (as they call it) ſhould moſt of it be cheriſhed; whereas in *Fruit*, and *Timber-trees* (*Oak* excepted) it is beſt to free them of it: As for *Pollards* (to which I am no great Friend, becauſe it makes ſo many *Scrags* and *Dwarfs* of many *Trees*, which would elſe be good *Timber*, endangering them with *Drips* and the like *Injuries*) they ſhould not be headed above once in ten or twelve Years, at the Beginning of the *Spring*, or End of the *Fall*. And note, that all *coppicing* and *cutting cloſe*, invigorates the *Roots* and the *Stem* of whatſoever grows *weak* and unkindly; but you muſt then take *Care* it be not overgrown with *Weeds* or *Graſs*: Nothing (ſays my Lord *Bacon*, *Exp.* 586. and truly) cauſes Trees to laſt ſo long, as the frequent *Cutting*; every ſuch *Diminution* be a *Re-invigoration* of the *Plant*'s Juice, ſo that it neither goes too *far*, nor riſes too *faintly*, as when 'tis not timely refreſhed with this *Remedy*; and therefore we ſee, that the moſt ancient *Trees* in *Church-yards*, and about *old Buildings*, are either *Pollards* or *Dotards*, ſeldom ariſing to their full Altitude. 'Tis true (as Mr. *Nourſe* obſerves) that *Elm* and *Oak* frequently *pollarded* and cut, hindering their mounting, increaſes the *Bulk* and *Circumference*, and makes a Shew of Subſtance; when all the while 'tis but a hollow Trunk, filled with its own Corruption, ſpending the genuine Moiſture which ſhould go to the Growth of the Arms and Head, and interior Subſtance of uſeful *Timber*.

7. For the Improvement of the ſpeedy Growth of *Trees*, there is not a more excellent Thing than the frequent *rubbing* of the *Boal* or *Stem*, with ſome Piece of *Hair-cloth*, or ruder Stuff, at the Beginning of *Spring*: Some I have known done with *Seals-skin*; the more rugged Bark with a Piece of *Coat* of *Mail*, which is made of ſmall *Wires*: This done, when the Body of the *Trees* are wet, as after a ſoaking *Rain*; yet ſo, as not to *excorticate*, or gall the *Tree*, has exceedingly accelerated its Growth (I am aſſured, to a wonderful and incredible Improvement) by opening the *Pores*, freeing them of * *Moſs*, and killing the *Worm*.

* See *Chap.* vii. *Book* ii.

8. Laſtly,

8. Laſtly, *Frondation*, or the taking off ſome of the luxuriant *Branches* and *Sprays* of ſuch *Trees*, eſpecially whoſe Leaves are profitable for *Cattle* (whereof already) is a Kind of *Pruning*: And ſo is the *ſcarrifying* and croſs *hatching* of ſome *Fruit-bearers*, and others, to abate that φυλλομανία, which ſpends all the *Juice* in the *Leaves*, to the Prejudice of the reſt of the Parts.

But after all this, let us hear what the learned and experienced *Eſq*; *Brotherton* has obſerved upon this *Article* of *Pruning*, and particularly of the taking off the *Top*; that thoſe *Trees* which were ſo uſed, ſome Years before the ſevere *Froſt* of 1684. *died*: Thoſe not ſo prun'd, eſcaped: And of other Trees (having but a ſmall Head left) the reſt of the Boughs cleared, the *Tops* flouriſhed, and the looſe Branches ſhread, periſhed, and the unpruned eſcaped: Moreover, when the like *Pruning* has been tried on Trees twenty Foot high, the Difference of the Increaſe was viſible the following Summer; but within ſeven or eight Years Time, the Difference was exceeding great, and even prodigious, both in *Bark* and *Branch*, beyond thoſe Trees that had been pruned.

9. This, and the like, belonging to the *Care* of the *Wood-ward*, will mind him of his continual Duty; which is to walk about and ſurvey his young *Plantations* daily; and to ſee that all *Gaps* be immediately ſtopt; treſpaſſing *Cattle* impounded; and (where they are infeſted) the *Deer* chaſed out, &c. It is moſt certain, that *Trees* preſerved and governed by this *Diſcipline*, and according to the *Rules* mentioned, would increaſe the Beauty of *Foreſts*, and Value of *Timber*, more in ten or twelve Years, than all other imaginable *Plantations* (accompanied with our uſual Neglect) can do in Forty or Fifty.

10. To conclude; in the Time of this *Work*, ſhould our ingenious *Arborator* frequently *incorporate*, mingle, and unite the *Arms* and *Branches* of ſome young and flexible *Trees*, which grow in *Conſort*, and near to one another, by entring them into their mutual *Barks* with a convenient *Inciſion*: This, eſpecially about *Fields* and *Hedge-rows*, for *Fence* and *Ornament*. Dr. *Plot* mentions ſome that do *naturally*, or rather indeed *accidentally*, mingle thus; nay, and ſo embrace and *coaleſce*, as if they iſſued out of the Bowels of one another: Such are the two *Beeches* in the Way from *Oxford* to *Reading* at *Cain-End*; the Bodies of which *Trees* ſpringing from different *Roots*, after they have aſcended parallel to the Top, ſtrangely unite together a great Height from the Ground, a tranſverſe Piece of Timber entring at each End the Bodies of the *Trees*, and growing jointly with them: The ſame is ſeen in *Sycamores* at *New-College* Gardens: I my ſelf have woven young *Aſh-poles* into Twiſts of three and four Braids, like *Womens* Hair, when they make it up to *fillet* it under their *Coifs*, which have ſtrangely incorporated and grown together without Separation; but theſe are rather for *Curioſity*, than of Advantage for *Timber*.

Trees will likewiſe grow frequently out of the *Boal* of the other; and ſome Roots will penetrate through the whole Length of the *Trunk*, till faſtening in the very Earth, they burſt the including *Tree*, as it has happened in *Willows*, where an *Aſh-tree* has ſprung likely from ſome *Key* or *Seed* dropt from the rotten Head of it: But this Accident not ſo properly pertaining to this *Chapter*, I conclude with recommending the bowing and bending of young *Timber-trees*, eſpecially *Oak* and *Aſh*, into various *Flexures*, *Curbs* and *Poſtures*, obliged to ply

Book III. themſelves into different *Modes*, which may be done by humbling and binding them down with tough *Bands* and *Withs*, or *Hooks* rather, cut *Skrew-wiſe*, or ſlightly *haggled* and indented with a *Knife*, and ſo *skrewed* into the Ground, or hanging of weighty Stones to the Tops, or Branches, till the *Tenor* of the *Sap*, and Cuſtom of being ſo conſtrained, did render them apt to grow ſo of themſelves, without Power of redreſſing: This Courſe would wonderfully accommodate Materials for *Knee-timber* and *Shipping*, the *Wheel-wright*, and other Uſes, conform it to their *Moulds*, and ſave infinite Labour, and abbreviate the Work of *Hewing* and *Waſte*.

——— *adeo in teneris conſueſcere multum eſt.*

And the *Poet*, it ſeems, knew it well, and for what Purpoſes,

[a] *When in the Woods with mighty Force they bow*
The Elm, *and ſhape it to a crooked Plow*;

ſo as it even half made it to their Hands.

CHAP. III.

Of the Age, Stature, *and* Felling *of* Trees.

Felling. I. THE *Age* of Trees, except of the *Coniferous* (for the moſt Part known by the *Degrees* of their tapering Branches) is vulgarly reckoned by the Number of *Solar Revolutions*, or *Circles*; the former *Bark* being digeſted and compacted into *lignous* and woody Subſtance, which is annually inveſted by a ſucceeding *Bark*; which yet in ſome is not finiſhed ſo ſoon as in other Trees; as we find in the *Oak*, *Elm*, *Pine*, *Plum-trees*, &c. which exceed one another in Growth, however co-equal in Years: But of this hereafter. In the mean Time, it is not till a Tree is arrived to his perfect *Age* and full *Vigour*, that the *Lord* of the *Foreſt* ſhould conſult or determine concerning a *Felling*: For there is certainly in Trees (as in all Things elſe) a Time of *Increment*, or Growth; a *Status* or Seaſon when they are at *beſt* (which is alſo that of *Felling*) and a *Decrement* or *Period* when they *decay*. To the *firſt* of theſe they proceed with more or leſs *Velocity*, as they conſiſt of more ſtrict and compacted *Particles*, or are of a ſlighter and more laxed *Contexture*; by which they receive a ſpeedier or ſlower *Defluxion* of *Aliment*. This is apparent in *Box*, and *Willow*; the one of a harder, the other of a more tender *Subſtance*: But as they proceed, ſo they likewiſe continue. By the *State* of Trees I would ſignify their utmoſt *Effort*, *Growth* and *Maturity*, which are all of them different as to *Time* and *Kind*; yet do not I intend by this any *Period* or Inſtant in which they do not continually either improve or decay (the *End* of *one* being ſtill the *Beginning* of the *other*) but farther than which their *Natures* do not extend; but immediately (though to our Senſes *imperceptible*) through ſome *Infirmity* (to which all Things ſublunary be obnoxious) dwindle and impair, either through *Age*, Defect of *Nouriſhment*, by *Sickneſs* and Decay of principal *Parts*; but eſpecially and more inevitably, when

[a] Continuò in Silvis magna vi flexa domatur
In burim, & curvi formam accipit Ulmus aratri: *Geo.* i.

violently

violently invaded by mortal and incurable *Infirmities*, or by what other Extinction of their *vegetative Heat*, *Subſtraction* or *Obſtruction* of *Air* and *Moiſture*; which making all *Motions* whatſoever to ceaſe and determine, is the Cauſe of their final Deſtruction. CHAP. III.

2. Our honeſt *Countryman*, to whoſe *Experience* we have been obliged for ſomething I have lately *animadverted* concerning the *pruning* of Trees, does, in another *Chapter* of the ſame *Treatiſe*, ſpeak of the *Age* of Trees. The *Diſcourſe* is both learned, rational, and full of Encouragement: For he does not ſcruple to affirm, that even ſome *Fruit-trees* may poſſibly arrive to a *Thouſand* Years of *Age*; and if ſo *Fruit-trees*, whoſe continual bearing does ſo much impair and ſhorten their Lives, as we ſee it does their Form and Beauty; how much longer might we reaſonably imagine ſome *hardy* and ſlow-growing *Foreſt-trees* may probably laſt? I remember *Pliny* tells us of ſome *Oaks* growing in his Time in the * *Hercynian* Foreſt, which were thought *co-evous* with the *World* it ſelf; their Roots had even raiſed *Mountains*, and where they encounter'd, ſwell'd into goodly *Arches*, like the Gates of a *City*: But our more modern *Author*'s Calculation for *Fruit-trees* (I ſuppoſe he means *Pears*, *Apples*, &c.) his Allowance is *three hundred* Years for *Growth*, as much as for their *Stand* (as he terms it) and *three hundred* for their *Decay*, which does in the Total amount to no leſs than *nine hundred* Years. This Conjecture is deduced from *Apple-trees* growing in his *Orchard*, which having known for *forty* Years, and upon diligent Enquiry of ſundry aged Perſons of eighty Years and more, who remembred them Trees all their Time, he finds, by comparing their Growth with others of that *Kind*, to be far ſhort in Bigneſs and Perfection (*viz.* by more than two Parts of three) yea, albeit thoſe other Trees have been much hindred in their Stature, through ill Government and Miſ-ordering: And this to me ſeems not at all extravagant, ſince I find mention of a *Pear-tree* near *Roſs* in *Herefordſhire*, which being of no leſs than eighteen *Foot* in *Circumference*, and yielding ſeven *Hogſheads* of *Cyder* yearly, muſt needs have been of very long Standing and *Age*, tho' perhaps not ſo near *Methuſalem*'s.

* Hercyniæ Silvæ *roborum vaſtitas intacta ævis, & congenita mundo, prope immortali ſorte miracula excedit.* Plin. Lib. xvi. Cap. ii.

3. To eſtabliſh this, he aſſembles many *Arguments* from the Age of Animals, whoſe *State* and *Decay* double the Time of their *Increaſe* by the ſame Proportion: *If then* (ſaith he) *thoſe frail* Creatures, *whoſe Bodies are nothing* (*in a Manner*) *but a tender Rottenneſs*, *may live to that* Age; *I ſee not but a* Tree *of a ſolid Subſtance*, *not damnified by* Heat *or* Cold, *capable* of, *and ſubject* to *any kind of ordering or dreſſing*, *feeding naturally*, *and from the Beginning disburthen'd of all Superfluities*, *eaſed of*, *and of his own accord avoiding the Cauſes that may annoy him*, *ſhould double the* Life *of other* Creatures *by very many Years*. He proceeds, *What elſe are* Trees *in Compariſon with the* Earth, *but as* Hairs *to the Body of* Man? *And it is certain*, *that* (*without ſome Diſtemper*, *or forcible Cauſe*) *the* Hairs *dure with the* Body, *and are eſteemed* Excrements *but from their ſuperfluous Growth*: So as he reſolves, upon good *Reaſon*, that *Fruit-trees* well ordered may live a *thouſand Years* and bear *Fruit*; and the longer the more, the *greater* and the *better*; (for which an *Inſtance* alſo in Dr. *Beal*'s *Herefordſhire* Orchards, *Pag.* 21, 22.) becauſe his Vigour is proud and ſtronger, when his Years are many. Thus you ſhall ſee *old Trees* put forth their

Book III. *Buds* and *Bloſſoms* both ſooner, and more plentifully than *young Trees* by much; *and I ſenſibly perceive* (ſaith he) *my young* Trees *to enlarge their Fruit as they grow greater*, &c. And if *Fruit-trees* continue to this *Age*, how many *Ages* is it to be ſuppoſed ſtrong and huge *Timber-trees* will laſt? whoſe maſſy *Bodies* require the Years of divers *Methuſelahs*, before they determine their Days; whoſe *Sap* is ſtrong and bitter; whoſe *Bark* is hard and thick, and their *Subſtance* ſolid and ſtiff; all which are Defences of Health and long Life. Their Strength withſtands all forcible *Winds*; their *Sap* of that Quality is not ſubject to *Worms* and Tainting; their *Bark* receives ſeldom or never by Caſualty any Wound; and not only ſo, but they are free from *Removals*, which are the Death of *Millions* of *Trees*; whereas the *Fruit-tree* (in Compariſon) is little, and frequently blown down; his *Sap* ſweet, eaſily and ſoon tainted; his *Bark* tender, and ſoon wounded; and himſelf uſed by *Man* as *Man* uſes himſelf; that is, either *unskilfully*, or *careleſly*. Thus he. But *Voſſius de Theolog. Gent. Lib.* v. *Cap.* v. gives too little Age to *Aſhes*, when he ſpeaks but of one *hundred* Years (in *which*, as in the reſt, he ſeems to agree with my Lord *Bacon*, *Hiſt. Vitæ & Mort. Artic.* i.) and to the *Medica*, *Pyrus*, *Prunus*, *Cornus* but *ſixty*; he had as good have held his Peace: Even *Roſemary* has laſted amongſt us a hundred Years.

4. I might to this add much more, and truly with ſufficient Probability, that the *Age* of *Timber-trees*, eſpecially of ſuch as be of a compact, *reſinous*, or *balſamical* Nature (for of this Kind are the *Yew*, *Box*, *Horn-beam*, *White-thorn*, *Oak*, *Walnut*, *Cedar*, *Juniper*, &c.) are capable of very long Duration and Continuance: Thoſe of largeſt *Roots* (a Sign of Age) longer lived than the *ſhorter*; the *dry* than the *wet*; and the *gummy*, than the *watery*; the *ſterile* than the *fruitful*: For not to conclude from *Pliny*'s * *Hercynian* Oaks, or the *Turpentine-Tree* of *Idumæa* (which *Joſephus* ranks alſo with the *Creation*) I mentioned a *Cypreſs*, yet remaining ſomewhere in *Perſia* near an old *Sepulchre*, whoſe *Stem* is as large as *five* Men can encompaſs, the Boughs extending fifteen Paces every way; this muſt needs be a very old Tree, believed by my *Author* little leſs than two thouſand five hundred Years of *Age*. Of ſuch another, Dr. *Spon*, in his Voyage into *Greece*, ſpeaks, which by its ſpreading ſeems to be of the *Savine* Kind: And, in Truth, as to the *Age* and Duration, *Cypreſs*, *Cedar*, *Box*, *Ebony*, *Braſil*, and other exceeding hard and compact (with ſome *reſinous*) *Woods*, growing chiefly in both *Eaſt* and *Weſt-Indies*, muſt needs be of wonderful Age. The Particulars were too long to recount. The old *Platanus* ſet by *Agamemnon*, mentioned by *Theophraſtus*, and the *Herculean* Oaks; the *Laurel* near *Hippocrene*, the *Vatican Ilex*, the *Vine* which was grown to that Bulk and *Woodineſs*, as to make a *Statue* of *Jupiter*, and *Columns* in *Juno*'s Temple; and at preſent 'tis found that the *great Doors* of the *Cathedral* at *Ravenna* is made of ſuch *Vine-tree* Planks; ſome of which are twelve *Foot* long, fourteen and fifteen *Inches* broad; the whole Soil of that Country producing *Vines* of prodigious Growth; and ſuch another in *Margiana* is ſpoken of by *Strabo*, that was twelve Foot in *Circumference*: *Pliny* mentions one of ſix hundred *Years* old in his Time; and at *Ecoan* the late *Duke* of *Montmorancy*'s Houſe, is a *Table* of a very large Dimenſion, made of the like Plant: And that which renders it the more ſtrange, is, That a Tree growing in ſuch a wreathed and twiſted manner, rather like a *Rope* than *Timber*,

* *Silvarum, Hercynia dierum ſexaginta iter occupans, ut major aliis, ita & notior.* Pomp. Mela. l. iii. c. iii.

Timber, and needing the Support of others, ſhould arrive to ſuch a Bulk, and firm Conſiſtence; but ſo it is, and *Olearius* affirms, that he found many *Vines* near the *Caſpian Sea*, whoſe Trunks were as big about as a Man. And the old *Lotus-Trees*, recorded by *Valerius Maximus*, and the *Quercus Mariana*, celebrated by the Prince of *Orators*: *Pliny*'s huge *Larix*, and what grew in the *Fortunate Iſlands*, with that enormous Tree *Scaliger* reports was growing in the *Troglodytic India*, *&c.* were famous for their Age: St. *Hierom* affirms he ſaw the *Sycamore* that *Zaccheus* climbed up, to behold our LORD ride in *Triumph* to *Jeruſalem*: But that's nothing for Age to the *Olive* under which our *Bleſſed Saviour* agonized, ſtill remaining (as they ſay) in the *Garden* to which he uſed to reſort. At the ſame Rate, *Surius* tells of other *Olive-trees* at *Nazareth*, and of the *curſed Fig-tree*, whoſe *Stump* was remaining above fifteen hundred Years. Not to omit that other *Fig-tree* (yet ſtanding near *Cairo*) which is ſaid to have opened in two Parts, to receive and protect the *Bleſſed Virgin* and *holy Babe*, as ſhe was flying into *Egypt*; but is now ſhewed whole again, as *Monconys*, who ſaw (but believed nothing of it) tells the Story. There is yet there a Tree of the ſame Kind, which meaſures ſeventeen Paces in Circumference: And now in the *Aventine* Mount they ſhew us the *Malus Medica*, planted by the Hand of St. *Dominic*, and another in the *Monaſtery* at *Fundi*, where *Thomas Aquinas* lived, planted by that *Saint*, 1278. In *Congo* they ſpeak of Trees capable to be excavated into *Veſſels*, that would contain two hundred *Men* a Piece. To which add thoſe ſuperannuated *Tilia*'s now at *Baſil*, and that of *Auſpurg*, under whoſe prodigious *Shade* they ſo often *feaſt*, and celebrate their *Weddings*; becauſe they are all of them noted for their reverend *Antiquity*; that of *Baſil* branching out one hundred Paces *Diameter*, from a *Stem* of about twenty Foot in Circle, under which the *German Emperors* have ſometimes eaten: And to ſuch *Trees* it ſeems they paid *Divine* Honours, as the neareſt *Emblems* of Eternity, *& tanquam ſacras ex vetuſtate*, as *Quintilian* ſpeaks. And like to theſe might that *Cypreſs* be, which is celebrated by *Virgil*, near to another Monument.

5. But we will ſpare our *Reader*, and refer him that has a Deſire to multiply *Examples* of this Kind, to thoſe undoubted *Records* our *Naturaliſt* mentions in *Chap.* xliv. *Lib.* xvi. where he ſhall read of *Scipio Africanus*'s Olive-trees; *Diana*'s *Lotus*; the *Ruminal Fig-tree*; under which the *Bitch-Wolf* ſuckled the *Founder* of *Rome* and his *Brother*; laſting (as *Tacitus* calculated) eight hundred and forty Years; putting out new Shoots, preſaging the *Tranſlation* of that *Empire* from the *Cæſarian* Line, hap'ning in *Nero*'s Reign. The *Ilex*, of prodigious Antiquity, as the *Hetruſcian* Inſcription remaining on it imported: But *Pauſanias*, in his *Arcadics*, thinks the *Samian Vitex* (of which already) to be one of the oldeſt Trees growing, and the *Platan* ſet by *Menelaus*; to theſe he adds the *Delian Palm*, co-evous with *Apollo* himſelf, and the *Olive* planted by *Minerva*, according to their Tradition; the over-grown *Myrtil*; the *Vatican* and the *Holm*, and the *Tiburtine*, and eſpecially that near to *Tuſculum*, whoſe Body was thirty-five Foot about; beſides divers others which he there enumerates in a large *Chapter*: And what ſhall we conjecture of the Age of *Xerxes*'s *Platanus*, in Admiration whereof he ſtaid the March of ſo many hundred thouſand Men for ſo many Days; by which the wiſe *Socrates* was

uſed to *ſwear*; and certainly, a goodly *Tree* was a powerful Attractive, when that prudent *Conſul*, *Paſſienus Criſpus*, fell in Love with a prodigious *Beech* of a wonderful Age and Stature, which he uſed to ſleep under, and would ſometimes refreſh it with pouring *Wine* at the Roots; and that wiſe Prince *Francis* the *Firſt*, as much enamoured with an huge *Oak*, which he cauſed to be ſo curiouſly immured at *Bourges*.

6. We have already made mention of *Tiberius*'s *Larch*, intended to be employed about the *Naumachia*, which being one hundred and twenty Foot in Length, bare two Foot *Diameter* all that Space (not counting the Top) and was looked upon as ſuch a Wonder, that though it was brought to *Rome* to be uſed in that vaſt Fabrick, the *Emperor* would have it kept *propter Miraculum*; and ſo it lay unemployed till *Nero* built his *Amphitheatre*. To this might be added the *Maſt* of *Demetrius*'s *Galeaſſe*, which conſiſted but of one *Cedar*: And that of the *Float* which wafted *Caligula*'s *Obelisks* out of *Egypt*, four Fathoms in Circumference. We read alſo of a *Cedar* growing in the *Iſland* of *Cyprus*, which was one hundred and thirty Foot *long*, and eighteen in *Diameter*; and ſuch it ſeems there are ſome yet growing on Mount *Libanus* (though ſo very few in Number) our late Traveller * Mr. *Maundrill*, affirms himſelf to have meaſured one of twelve Yards ſix Inches in Girt, ſound, and no leſs than thirty Yards from the Ground, divided into five Limbs, each of which was equal to a great Tree: Of the *Plane* in *Athens*, whoſe Roots extended thirty-ſix Cubits farther than the Boughs, which were yet exceedingly large; and ſuch another was that moſt famous Tree at *Veliternus*, whoſe Arms ſtretched out eighty Foot from the Stem: But theſe were *ſolid*. Now if we will calculate from the *Hollow*, beſides thoſe mentioned by *Pliny*, in the *Hercynian* Foreſt; the *Germans* had *Caſtles* in *Oaks*, and (as now the *Indians*) had of old ſome *Punti*, or *Canoos* of excavated *Oak*, which would well contain thirty, ſome forty Perſons: Such were the antient μονόξυλα, in uſe yet about *Cephalonia*, as Sir *George Wheeler* obſerved; and ſuch the Ἄδρυα Πλοῖα uſed by thoſe of *Cypreſs*: But what were theſe to a *Canoo* in *Congo*, which was made to hold two hundred Men? And the *Lician Platanus*, recorded by the *Naturaliſt*, and remaining long after his Days, had a Room in it of *eighty-one* Foot in Compaſs, adorned with *Fountains*, ſtately *Seats* and *Tables* of Stone; for it ſeems it was ſo glorious a *Tree* both in Body and Head, that *Licinius Mutianus* (three times *Conſul* and Governour of that *Province*) uſed to feaſt his whole Retinue in it, chooſing rather to lodge in it, than in his golden-roofed *Palace*; it was in Compaſs eighty Foot, and grew in *Aſia*. And of later Date, that vaſt *Cerrus* in which an *Eremite* built his *Cell* and *Chapel*, ſo celebrated by the noble *Fracaſtorius* in his Poem *Malteide*. *Cant.* viii. *Stro.* xxx.

* *Maundrill's Journey to Jeruſalem*, p. 140.

But for theſe capacious *hollow Trees* we need go no farther than our own *Country*; there being (beſides that which I mention in *Glouceſterſhire*) an *Oak* at *Kidlington-Green* in *Oxfordſhire*, which has been frequently uſed (before the Death of the late Judge *Morton*, near whoſe Houſe it ſtood) for the immediate Impriſonment of *Vagabonds* and *Malefactors*, till they could conveniently be removed to the County-*Goal*: And ſuch another *Priſon* Dr. *Plot* does, in his excellent Hiſtory of *Oxfordſhire*, mention out of *Ferdinand Hertado* in *Moravia*, to be made out of the *Trunk* of a *Willow*, twenty-ſeven Foot in Compaſs: But not to go out of our promiſed Bounds, the Learned *Doctor* ſpeaks of an

an *Elm* growing on *Blechington-Green*, which gave Reception and Harbour to a poor *great-belly'd Woman* (whom the unhoſpitable People would not receive into their Houſes) who was brought to Bed in it of a *Son*, now a luſty young Fellow. This puts me in mind of that (I know not what to call it) *Privilege* belonging to a venerable *Oak*, lately growing in *Knoll-Wood*, near *Trely-Caſtle* in *Staffordſhire*, of which, I think, Sir *Charles Skrymſher* is Owner; that upon *Oath* made of a *Baſtard*'s being begotten within the reach of its *Bough*'s *Shade* (which I aſſure you at the riſing and declining of the *Sun* is very ample) the *Offence* was not obnoxious to the Cenſure of either *Eccleſiaſtical* or *Civil* Magiſtrate. Theſe, with our *Hiſtorians*, I rather mention alſo for their extravagant Uſe, and to refreſh the *Reader* with ſome Variety, than for their extraordinary Capacity; becauſe ſuch Inſtances are innumerable, ſhould we pretend to illuſtrate this Particular with more than needs.

And now I have ſpoken of *Elms*, and other Extravagancies of *Trees*; there ſtands *one* (as this curious Obſerver notes) in *Binſey* Common, ſix Yards *Diameter* next the Ground, which 'tis conjectured has been ſo improved by raiſing an earthen Bank, or Seat about it, which has cauſed it to put forth into *Spurs*; it not being ſo conſiderable in the higher *Trunk*.

7. Compare me then with *theſe* that nine fathom'd-deep *Tree* ſpoken of by *Joſephus Acoſta*; the *Maſtick-tree*, ſeen and meaſured by Sir *Francis Drake*, which was four and thirty Yards in Circuit; thoſe of *Nicaragua* and *Gambra*, which ſeventeen Perſons could hardly embrace: Among theſe may come in the *Cotton-tree* deſcribed by *Dampier*. In *India* (ſays *Pliny*) *Arbores tante proceritatis traduntur, ut ſagittis ſuperari nequeant* (and adds, which I think *material*, and therefore add alſo) *Hæc facit ubertas ſoli, temperies cæli, & Aquarum abundantia.* Such were thoſe *Trees* in *Corſica*, and near *Memphis*, *&c.* recorded by *Theophraſtus*, *&c.* and for prodigious Height, the *two* and *three hundred* Foot unparalleled *Palms-Royal* deſcribed by Captain *Ligon*, growing in our *Plantations* of the *Barbados*; or thoſe goodly *Maſts* of *Fir*, which I have ſeen and meaſured, brought from *New-England*; and what *Bembus* relates of thoſe *twenty*-fathom'd *Antarctic*-trees; or thoſe of which *Cardan* writes, called *Ciba*, which riſing in their ſeveral *Stems* each of twenty *Foot* in Compaſs, and as far diſtant each from other, unite in the *Boal* at fifteen *Foot* height from the Ground, compoſing *three* ſtately *Arches*, and thence aſcending in a *Shaft* of prodigious Bulk and Altitude: Such *Trees* of thirty-ſeven Foot *Diameter* (an incredible Thing) *Scaliger* (his *Antagoniſt*) ſpeaks of *ad Gambræ fluvium*. *Matthiolus* mentions a *Tree* growing in the Iſland of *Cyprus*, which contained one hundred and thirty Foot high ſound *Timber*: And upon *Mount Ætna* in *Sicily* is a Place called by them *gli Caſtayne*, from three *Cheſnut-trees* there ſtanding, where in the Cavity of one, yet remaining, a conſiderable Flock of *Sheep* is commonly folded: *Kircher*'s Words are theſe, as ſeen by himſelf; *Et quod forſan θαῦμα videri poſſit, oſtendit mihi viæ dux, unius Caſtaneæ Corticem tantæ amplitudinis, ut intra eam integer pecorum grex à paſtoribus, tanquam in Caula commodiſſima, noctu includeretur. China Illuſt. p.* 185. But this, as I remember, was lately ruin'd by the direful Conflagration about *Catanea*. And what may we conceive of thoſe *Trees* in the *Indies*, one of whoſe *Nuts* hardly one

Man is able to carry; and which are ſo vaſt, as they depend not, like other *Fruit*, by a *Stalk* from the *Boughs*, but are produced out of the very Body and *Stem* of the *Tree*, and are ſufficient to feed twenty Perſons at a *Meal?* There were *Trees* found in *Brazil*, that ſixteen Men could hardly fathom about; and the *Jeſuits* cauſed one of theſe to be felled, for being ſuperſtitiouſly worſhipped by the *Savages*, which was one hundred and twenty *Foot* in Circumference. The *Mexican* Emperor is ſaid to have had a Tree in his *Garden*, under whoſe *Shade* a *thouſand* Men might ſit at a competent Diſtance.

We read of a certain *Fig* in the *Charibee Iſlands*, which emits ſuch large Buttreſſes, that great *Planks* for Tables and Flooring are cleft out of them, without the leaſt Prejudice to the *Tree*; and that one of theſe does eaſily ſhelter two hundred Men under them: And in *Nieuhoff*'s Voyage to the *Eaſt-Indies*, of the *Kynti*, a Kind of *Oak*, which yield *Planks* of four Foot Breadth, and forty in Length: *Strabo*, I remember, *Georg. Lib.* xv. talks of fifty Horſemen under a Tree in *India*; his Words are ὥσθ' ὑφ' ἕνι δένδρῳ μεσημβρίζειν σκιαζομένους ἱππέας πεντήκοντα, and of another that ſhaded five *Stadia* at once; and in another Place of a *Pine* about *Ida*, which meaſured twenty-four Foot Diameter, and of a monſtrous Height: To theſe may be added the *Arbor de Rays*, a certain *Tree* growing in the *Eaſt-Indies*, which propagates it ſelf into a vaſt *Foreſt* (if not hindered) by ſhooting up, and then letting a Kind of gummy String to fall and drivle from its Branches, which takes Root in the Ground again, and in this Proceſs ſpread a vaſt Circuit, the ſingle Stem of ſome of which are reported to be no leſs than fifty Foot Diameter, a Thing almoſt incredible. To this may be added the *Balete*, deſcribed by Mr. *Ray*, (*Append.* 3d Vol.) and what he cites of *Melchion Barros*, who found Trees Proof againſt Weapons, reſiſting the Force of any edged Tool, being of a Conſiſture ſo hard: But even this, and all we have hitherto produced, is nothing to what I find mentioned in the late *Chineſe Hiſtory* (as 'tis ſet forth upon Occaſion of the *Dutch Embaſſy*) where they tell us of a certain *Tree* called *Ciennich* (or the *Tree* of a thouſand *Years*) in the Province of *Suchu*, near the City *Kien*, which is ſo prodigiouſly large, as to ſhrowd two hundred *Sheep* under one only *Branch* of it, without being ſo much as perceived by thoſe who approach it. And to conclude with yet a greater Wonder, of another in the Province of *Chekiang*, whoſe Amplitude is ſo ſtupendiouſly vaſt, as *fourſcore* Perſons can hardly embrace: Theſe *gigantick Trees*, the *Chineſe Timber*-Merchants tranſport on *Floats*, upon which they build *Huts* and little Cottages, where they live with their Families, floating many thouſand Miles till all be ſold, as *Le Compte* tells us: In the mean Time we muſt not omit the ſtrange and incredible Bulk of ſome *Oaks* ſtanding lately in *Weſtphalia*, whereof one ſerved both for a *Caſtle* and *Fort*; and another there, which contained in Height one hundred and thirty *Foot*, and (as ſome report) thirty *Foot* Diameter; and another which yielded one hundred Wane-Load. I have read of a Table of *Walnut-tree* to be ſeen at St. *Nicholas*'s in *Lorrain*, which held twenty-five *Foot* broad, all of a *Piece*, and of competent Length and Thickneſs, rarely *fleck'd* and *water'd*; *Scamozzi* the *Architect* reports he ſaw it: Such a Monſter that might be, under which the *Emperor Frederick* the *Third* held his magnificent *Feaſt*, 1472. For in this *Recenſion* we will endeavour to give a Taſte of more freſh Obſervations, and to compare our modern *Timber* with the *Antient*,

and

and that, not only abroad, but without travelling into foreign Countries for theſe Wonders.

8. What goodly *Trees* were of Old *adored*, and conſecrated by the *Driads*, I leave to conjecture from the Stories of our antient *Britains*, who had they left *Records* of their *Prodigies* in this Kind, would doubtleſs have furniſhed us with *Examples* as remarkable for the *Growth* and *Stature* of *Trees*, as any which we have deduced from the *Writers* of Foreign Countries; ſince the Remains of what are yet in being (notwithſtanding the Havock which has univerſally been made, and the little Care to improve our *Woods*) may ſtand in fair Competition with any thing that *Antiquity* can produce.

9. There is ſomewhere in *Wales* an *Inſcription* extant, cut into the Wood of an old Beam, thus,

SEXAGINTA PEDES FUERANT IN STIPITE NOSTRO,
EXCEPTA COMA QUÆ SPECIOSA FUIT.

this muſt needs have been a noble Tree, but not without later *Parallels*; for to inſtance in the ſeveral *Species*, and ſpeak firſt of the Bulks of ſome immenſe Trees; there was ſtanding an old and decayed *Cheſnut* at *Fraiting* in *Eſſex*, whoſe very Stump did yield thirty ſizable Load of *Logs*. I could produce you another of the ſame Kind in *Glouceſterſhire*, which contains within the Bowels of it a pretty wainſcotted Room inlighten'd with Windows, and furniſh'd with Seats, *&c.* to anſwer the *Lician Platanus* lately mentioned.

10. But whilſt I am on this Period; ſee what a *Tilia* that moſt learned and obliging Perſon Sir *Tho. Brown* of *Norwich* deſcribes to me in a Letter juſt now received.

An extraordinary large and ſtately Tilia, Linden, *or* Lime-tree, *there groweth at* Depeham *in* Norfolk, *ten Miles from* Norwich, *whoſe Meaſure is this. The Compaſs in the leaſt Part of the* Trunk *or Body about two Yards from the Ground, is at leaſt* eight Yards *and* half; *about the Root nigh the Earth*, ſixteen Yards, *about half a Yard above* that, *near twelve* Yards *in Circuit: The* Height *to the uppermoſt Boughs about* thirty Yards, *which ſurmounts the famous* Tilia *of* Zurich *in* Switzerland; *and uncertain it is whether in any* Tilicetum, *or* Lime-walk, *abroad it be conſiderably exceeded: Yet was the firſt Motive I had to view it not ſo much the Largeneſs of the Tree, as the general Opinion that no Man could ever name it; but I found it to be a* Tilia fœmina; *and* (*if the Diſtinction of* Bauhinus *be admitted from the greater and leſſer* Leaf) *a* Tilia Platyphyllos, *or* Latifolia; *ſome Leaves being* three Inches *broad*; *but to diſtinguiſh it from others in the* Country, *I called it* Tilia Coloſſæa Depehamenſis.

Thus that learned Perſon, from this and the like *Inſtance* (as the *Reader* will find in what follows growing in our own *Country*) I am not apt ſo much to admire what is pretended ſo mightily to exceed the refreſhing Shades of ſome of our *Oaks*, *Beeches*, *Elms*, and other ample Umbrages, if diligently compared; as I am to impute it to what the younger * *Pliny* attributes to Mens affecting Novelties, that *tanta ſuarum rerum ſatietas, aliacumque aviditas.*

* Lib. viii. Ep. xx. *ad* Gallius.

A *Poplar-tree*, not much inferior to this, he informs me grew lately at *Harling* by *Thetford*, at Sir *William Gawdy*'s Gate, blown down by that terrible *Hurricane* about four Years ſince.

But

Book III. But here does properly intervene the *Linden* of *Schalouſe* in *Swiſſe*, under which is a Bower compoſed of its Branches, capable of containing three hundred Perſons ſitting at eaſe: It has a Fountain ſet about with many Tables, formed only of the Boughs, to which they aſcend by Steps; all kept ſo accurately, and ſo very thick, that the *Sun* never looks into it: But this is nothing to that prodigious *Tilia* of *Newſtadt* in the *Dutchy* of *Wirtemberg*, ſo famous for its Monſtroſity, that even the *City* itſelf receives a Denomination from it, being called by the *Germans* **Neuſtadt ander groſſen Linden**, or *Newſtadt* by the great *Lime-tree*. The Circumference of the *Trunk* is twenty-ſeven *Foot* four *Fingers*: The *Ambitus*, or Extent of the *Boughs*, four hundred and three *Ferè*; the *Diameter* from *South* to *North* one hundred and forty-five, from *Eaſt* and *Weſt* one hundred and nineteen Foot; ſet about with divers *Columns* and Monuments of *Stone* (eighty-two in Number at preſent, and formerly above an *Hundred* more) which ſeveral *Princes* and noble Perſons have adorned, and celebrated with *Inſcriptions*, *Arms* and *Devices*, and which, as ſo many *Pillars*, ſerve likewiſe to ſupport the umbragious and venerable Boughs: And that even the *Tree* had been much ampler, the *Ruins* and Diſtances of the *Columns* declare, which the rude Soldiers have greatly impair'd.

By the *Date* of the antienteſt *Columns*, yet intire, namely *Anno* 1555, may be conjectured how goodly a Tree it was almoſt two *hundred Years* ſince. The *Inſcriptions* on the ſeveral *Arms* and *Supporters* are as follows.

D. V. H. Z. W. CLL——— *Graff zu Leuehtenberg.* 1591. 1583. 1575. *Albert von roſenberg Ritter.* 1591. *Wolff Keidel alter Furleutium.* 1555. *Some report he planted it. Hans Heinrie vonder Tana.* 1583, *Conrad von Flbeg.* 1575. *Friz Nerter von Hertenek.* 1575. *Wirich von Gemmingen.* 1575. *Bartol———Mot.* 1555. V. *Hans Funk der zeit Burgermeiſter Die erſt,* 1555. *Hans Ulrich Stigelheimer zu Durarhenig Fuctlicher. hr. Hoff-meiſter.* 1591.

Præſul de Langheim rediens Ciſterliæ ab urbe
Pyramidem hanc poſuit flammis Cœleſtibus auctam.
Sentiat hæc etiam Mumen ſpirabile toto
Pectore, & illius ſemper ſit munere fœlix.

Johann. Aht zu *Langh.* 1601. *Joh. Aht* zu *Schoenthal.* 1584. *Eberhard von Gimmingen.* 1555. *David von Helmſtad Amtman. Graff. Fridrich* zu *Mompelyard. Hans Henrick von Lammeſtein. Sigiſmund Signiger.* L. H. Z. W. A. 353. G. L. *Mary Graff au Brandenb.* 1562. *Georg. Erneſt Graff* zu *Henneb. Herr* zu *Aſchaffb.* 1575. *Michel Helmling Statt-ſchreiber.* 1555. *Hans Ulrick von Steinc.* 1575. *Daniel von Helmſtatt.* zu *Kappenaw.* 1556. ——— *Stamel von Reiſchach* 1575. *Willhelm von Crombach* 1588. *Bernolph von Gammingen.* 1588. *Schweiker Wumbold von Umſtatt.* 1591. *Henrich Link Pfarrer* zu *Uden. Andreas von Oberbach Vorſmeiſt.* zu *Neu-ſtatt. Neubrecht Bart Keller* zu *Leuſtatt.* 1557.— *Ernberg. Thomas Buſch von Schorndorff. Wolffang von Gemmingen* 1588. *Feit Kumeter Forſtmeiſter.* 1551, and 1530.

After *this* we might forbear the naming that at *Tillburg* near *Buda* in *Hungary*, growing in the middle of the Street, extending to ſixty-

two Paces from the Stem, ſuſtained by twenty-eight *Columns*: Nor that nearer us, at *Cleves* in the *Low-Countries*, a little without the entring into the Town, cut in eight *Faces* ſupported with *Pillars*, and containing a Room in the middle, the Head of the Tree curiouſly ſhap'd: I ſay, I need not have charged this *Paragraph* with half theſe, but to ſhew how much more the *Lime-tree* ſeems to be diſpoſed to be brought into theſe *arborious* Wonders, than other Trees of ſlower Growth: And yet I am told of a *White-thorn* at *Worms* in *Germany*, planted in the Centre of the *Quadrangle* of the great *Church*, whoſe Branches, held up with Stone, is in Circle fifty Paces: Several more occur, too tedious to recite: But what is all this, take the moſt ſpreading of them, to what we ſhall ſhew, whilſt that of *Neuſtadt* comes not yet by *forty Foot* near to the Dimenſions of an *Oak* ſtanding lately in *Worksop-Park*, belonging to his Grace the Duke of *Norfolk*, *Earl Marſhal of* England, ſpreading almoſt three thouſand Yards ſquare, and under the Shade whereof near a *thouſand Horſe* might commodiouſly ſtand at once. But, beſides this gigantic *Lime-tree*, there is likewiſe a *White-thorn*, brought (as the Tradition goes) a ſmall Twig out of *Paleſtine*, *Anno* 1470, by *Eberhard*, firſt *Duke* of *Wirtemberg*, and planted near *Tubing*, where he founded St. *Peter's Monaſtery*, the *Branches* whereof being ſuſtained by *forty Columns* of *Stone*, is yet a flouriſhing *Tree*: 'Tis probable *that* of *Glaſtenbury* is of this Kind, and above a *thouſand* Years antienter, if the Report be true. At *Forti* grows a *Filbert* whoſe *Trunk* is as big as three Mens Middles: Near *Eſſling* is a *Juniper-tree* of almoſt *two Foot* Diameter in the lower *Trunk*, and very tall: Theſe *Prodigies*, with ſeveral more we have from Dr. *Faber*, *Phyſician* to *Frederic Duke* of *Wirtemberg*, and collected by the late induſtrious Jeſuit *Schotti*, in his *Appendix ad Lib.* ii. *De Mirabilibus Miſcellaneis*. Nor may here that goodly *Birch-tree* be forgotten, which growing in one of the *Courts* of the *Palace* of *Ausburgh*, is ſo ſpreading, as that the *Branches* will cover three hundred and ſixty-five Tables, even as many as there are Days in the Year, with its *Shade*, as *Tavernier* tells us in his *Travels*. Mr. *Cook*, in his ingenious and uſeful *Treatiſe*, mentions a *Witch-Elm* growing within theſe three or four Years in Sir *Walter Baggot's Park* in the *County* of *Stafford*, which after two Men had been five Days felling, lay forty *Yards* in Length; was at the *Stool* ſeventeen Foot *diameter*: It broke in the Fall fourteen *Load* of *Wood*, forty-eight *Load* in the Top: Yielded eight Pair of *Naves*, eight thouſand ſix hundred and ſixty *Foot* of *Boards* and *Planks*: It coſt *ten Pounds*, *ſeventeen Shillings* the *ſawing*, the Whole eſteemed ninety-ſeven *Tuns*: This was certainly a goodly *Stick!*

What other prodigious *Trees* do at preſent, and of late abound in that *Country*, may be ſeen in Dr. *Plot's Natural Hiſtory*; nay, ſome planted in the Memory of Men of the Place, that have grown to a wonderful *Procerity*: Such was an *Oak* at *Narbury*, of fifteen *Yards* in *Girth*, which being felled, two Men at either Side on *Horſe-back* could not ſee one another: And of an *Aſh* of eight *Foot diameter*, the *Timber* of which was valued at 30 *l.*

11. I am told of a very *Withy-tree*, to be ſeen ſomewhere in *Barkſhire*, which is increaſed to a moſt ſtupendious Bulk; and of two *Witch-hazel-trees* of prodigious Size, growing in *Oakſey-Park*, belonging to Sir *Edw. Pooles* near *Malmsbury* in *Wiltſhire*, not inferior to the

Book III. largeſt *Oaks* : But theſe for arriving haſtily to their *Acme* and *Period*, and generally not ſo conſiderable for their Uſe ; I paſs to the *Aſh*, *Elm*, *Oak*, *&c.*

There were of the *firſt* of theſe divers which meaſured in Length *one hundred* and *thirty-two Foot*, ſold lately in *Eſſex* : And in the *Manour* of *Horton* (to go no farther than the Pariſh of *Ebſham* in *Surrey*, belonging to my Brother *Richard Evelyn*, Eſq;) there were *Elms* ſtanding in good Numbers, which would bear almoſt three Foot Square for more than forty Foot in Height, which is (in my Judgment) a very extraordinary Matter. They grow in a moiſt *Gravel*, and in the *Hedge-rows*.

Not to inſiſt upon *Beech*, which are frequently very large ; there are *Oaks* of forty *Foot* high and five *Foot diameter*, yet flouriſhing in divers old *Parks* of our Nobility and Gentry : And *Firs* of one hundred and fifty Foot in height ; which is exceeded by one growing in a Wood about *Bern* by almoſt one hundred Foot, as *Chabrous* tells us.

A large and goodly *Oak* there is at *Reedham*, in Sir *Richard Berney*'s *Park* of *Norfolk*, which I am informed was valued at forty Pounds the *Timber*, and twelve Pounds the lopping Wood.

12. Nor are we to over-paſs thoſe memorable *Trees* which ſo lately flouriſhed in *Dennington-Park* near *Newbury* ; amongſt which *three* were moſt remarkable from the ingenious *Planter*, and *Dedication* (if *Tradition* hold) of the famous *Engliſh Bard*, *Jeoffry Chaucer* ; of which one was called the *King*'s, another the *Queen*'s, and a third *Chaucer*'s *Oak*. The firſt of theſe was *fifty Foot* in height before any *Bough* or *Knot* appeared, and cut *five Foot* ſquare at the *Butt-end*, all clear *Timber*. The *Queen*'s was fell'd ſince the *Wars*, and held *forty Foot* excellent *Timber*, ſtraight as an Arrow in Growth and Grain, and cutting *four Foot* at the *Stub*, and near a *Yard* at the Top ; beſides a Fork of almoſt *ten Foot* clear *Timber* above the Shaft, which was crowned with a ſhady Tuft of *Boughs*, amongſt which, ſome were on each Side curved like *Rams-horns*, as if they had been ſo induſtriouſly bent by Hand. This *Oak* was of a Kind ſo excellent, cutting a Grain clear as any *Clap-board* (as appeared in the *Wainſcot* which was made thereof) that a thouſand Pities it is ſome *Seminary* of the *Acorns* had not been propagated, to preſerve the Species. *Chaucer*'s *Oak*, though it were not of theſe Dimenſions, yet was it a very goodly *Tree* : And this Account I received from my moſt honoured Friend *Phil. Packer*, Eſq; whoſe *Father* (as lately the *Gentleman* his *Brother*) was Proprietor of this *Park* : But that which I would farther remark, upon this occaſion, is the *Bulk* and *Stature* to which an *Oak* may poſſibly arrive within leſs than *three hundred Years* ; ſince it is not ſo long that our *Poet* flouriſhed (being in the *Reign* of King *Edward* III.) if at leaſt he were indeed the *Planter* of thoſe *Trees*, as 'tis confidently affirmed. I will not labour much in this Enquiry ; becauſe an *implicit* Faith is here of great Encouragement ; and it is not to be conceived what *Trees* of a good Kind, and in apt *Soil*, will perform in a few Years ; and this (I am informed) is a ſort of *gravelly Clay*, moiſtened with ſmall and frequent Springs. In the mean while, I have often wiſhed, that *Gentlemen* were more curious of tranſmitting to *Poſterity*, ſuch *Records*, by noting the Years when they begin any conſiderable *Plantation* ; that the *Ages* to come may have both the Satisfaction and Encouragement by more accurate and certain *Calculations*.

Henry

Henry Ranjovious planted a *Grove* in *Ditmarſh*, *Anno* 1580, of *Oak*, *Fir*, *Beech*, *Birch*, *&c.* and erected a *Stone* with this *Inſcription* (which I mention not for its Elegancy, but Example) *An. Dom.* 1580. *Quercus*, *Abietas*, *Betulas*, *&c. Plantavit*: *Annum & Initium ſationis adſcribi juſſit*; *& earum Ætatem exploraret poſteritas*; *quod in omnia Orbis ſæcula æterna Divinitati commendat*; as I find it recorded by that induſtrious *Genealogiſt*, *Scipio Amiratus* of *Florence*. But the only Inſtance I know of the like in our own Country, is in the *Park* at *Althorp* in *Northamptonſhire*, the magnificent Seat of the *Right. Hon.* the *Earl* of *Sunderland*. I find a *Jewiſh* Tradition, cited by the learned *Bochart*, that *Noah* planted the Trees (he ſuppoſes *Cedars*) of which he afterwards built the *Ark* that preſerved him: Nor was it eſteemed any Diminution for *Princes* themſelves to plant *Trees* with that Hand which held the *Scepter* and *Reins* of Empire: So as in the *Voorhout* of the *Hague*, ſtands a *Tree* placed there by the Hands of the Emperor *Charles*, which is yet in its prime Growth, and no ſmall Boaſt of the good People: But to proceed.

13. There was in *Cunsborough* (ſometimes belonging to my Lord of *Dover*) ſeveral *Trees* bought by a *Cooper*, of which he made *ten Pounds per Yard* for three or four Yards, as I have been credibly aſſured: But where ſhall we parallel that mighty *Tree* which furniſhed the *Main-maſt* to the *Sovereign* of our *Seas*, which being one *hundred Foot long* ſave one, bare *thirty-five* Inches *diameter*: Yet was this exceeded in Proportion and Uſe, by that *Oak* which afforded thoſe prodigious *Beams* that lie thwart her. The *Diameter* of this *Tree* was four Foot nine Inches, which yielded four ſquare *Beams* of *four and forty* Foot long each of them. The *Oak* grew about *Frameingham* in *Suffolk*; and indeed it would be thought fabulous, but to recount only the extraordinary Dimenſions of ſome *Timber-trees* growing in that *Country*; and of the exceſſive Sizes of theſe *Materials*, had not mine own Hands meaſured a *Table* (more than once) of above *five* Foot in breadth, *nine* and an *half* in length, and *ſix* Inches thick, all intire and clear (not reckoning the *Slab*.) This Plank cut out of a *Tree* fell'd by my *Grandfather*'s Order, was made a *Paſtry-board*, and lay on a Frame of ſolid *Brick-work* at *Wotton* in *Surrey*, where it was ſo placed before the *Room* was finiſhed about it, or Wall built, and yet abated by *one Foot* ſhorter, to confine it to the intended Dimenſions of the Place; for at firſt it held this breadth, full *ten Foot* and an *half* in length: By an *Inſcription* cut in one of the Sides, it had lain there above an hundred Years. To this may be added that *Table* of *one Plank*, of above ſeventy-five Foot long, and a Yard broad through the whole Length, now to be ſeen in *Dudly-Caſtle Hall*, which grew in the *Park*, deſcribed by Dr. *Plot*, *Nat. Hiſt.* of *Staffordſhire*. *Merſennus* tells us, that the *great Ship*, called the *Crown*, which the late *French King* cauſed to be built, has its *Keel-timber* one hundred and twenty *Foot* long; and the *Main-maſt* twelve *Foot* diameter at the Bottom, and eighty-five in Height.

14. To theſe I might add a *Yew-tree* in the *Church-yard* of *Crowhurſt* in the County of *Surrey*, which I am told is *ten Yards* in Compaſs; but eſpecially that ſuperannuated *Yew-tree* growing now in *Braburne Church-yard*, not far from *Scots-Hall* in *Kent*; which being fifty-eight Foot eleven Inches in the *Circumference*, will bear near twenty Foot *diameter*, as it was meaſured firſt by my ſelf imperfectly,

and

Book III. and then more exactly for me, by order of the late Right Honourable Sir *George Carteret*, *Vice-Chamberlain* to his *Majeſty*, and late *Treaſurer* of the *Navy:* Not to mention the goodly *Planks*, and other conſiderable Pieces of ſquared and clear *Timber*, which I obſerved to lie about it, that had been hewed and *ſawn* out of ſome of the *Arms*, only torn from it by impetuous Winds. Such another *Monſter* I am informed is alſo to be ſeen in *Sutton Church-yard*, near *Wincheſter*. To theſe we add what we find taken Notice of by the learned and induſtriouſly curious Dr. *Plot*, in his *Natural Hiſtory* of *Oxfordſhire*; particularly an *Oak* between *Nuncham-Courtney* and *Clifton*, ſpreading from Bough-end to Bough-end, eighty-one *Foot*, ſhading in *Circumference* five hundred and ſixty ſquare *Yards* of Ground, under which two thouſand four hundred and twenty Men may commodiouſly ſtand in ſhelter. And a bigger than this, near the Gate of the *Water-walk* at *Magdalen-College*, whoſe *Branches* ſhoot ſixteen *Yards* from the *Stem*; likewiſe of another at *Ricat*, in the *Lord Norrey*'s *Park*, extending its Arms fifty-four *Foot*, under which three hundred and four Horſes, or four thouſand three hundred and ſeventy four Men may ſufficiently ſtand: This is that *Robur Britannicum* ſo much celebrated by the late *Author* of *Dodona*'s *Grove*, and under which he leans contemplating in the *Frontiſpiece*. But theſe (with infinite others, which I am ready to produce) might fairly ſuffice to vindicate and aſſert our *Propoſition*, as it relates to *modern Examples*, and Sizes of *Timber-trees*, comparable to any of the *Antients*, remaining upon laudable and unſuſpected *Records*; were it not great Ingratitude to conceal a moſt induſtrious, and no leſs accurate *Account*, which comes to my Hands from Mr. *Halton*, Auditor to the Right Honourable the moſt Illuſtrious and Noble *Henry Duke* of *Norfolk*, *Earl Marſhal* of *England*.

In Sheffield *Lordſhip*.

The Names of the Perſons *who gave Intelligence of the* Particulars.

Edw. Rawſon.

15. In the *Hall-Park*, near unto *Rivelin*, ſtood an *Oak* which had eighteen *Yards* without *Bough* or *Knot*, and carried a *Yard* and *ſix Inches* ſquare at the ſaid Height or Length, and not much bigger near the *Root:* Sold twelve *Years* ago for eleven Pounds. *Conſider the* Diſtance *of the* Place *and* Country, *and what ſo prodigious a* Tree *would have been worth near* London.

Cap. Bullock.

In *Firth*'s-*Farm* within *Sheffield Lordſhip*, about twenty *Years* ſince, a *Tree* blown down by the *Wind*, made, or would have made two *Forge-Hammer-Beams*, and in thoſe, and the other Wood of that *Tree*, there was of Worth, or made fifty Pounds; and *Godfrey Frogat* (who is now living) did oft ſay, he loſt thirty Pounds by the not buying of it.

A *Hammer-beam* is not leſs than $7\frac{1}{2}$ *Yards* long, and 4 *Foot* ſquare at the *Barrel*.

In *Sheffield-Park*, below the *Mannor*, a *Tree* was ſtanding which was ſold by one *Gifford* (Servant to the then *Counteſs* of *Kent*) for two Pounds ten Shillings, to one *Nich. Hicks*; which yielded of ſawn *Wair* fourteen hundred and, by Eſtimation, twenty *Cords* of Wood.

Ed. Morphy, *Wood-ward.*

A *Wair* is two *Yards* long, and one Foot broad, ſixſcore to the Hundred: So that in the ſaid *Tree* was ten thouſand and eighty Foot of *Boards*; which, if any of the ſaid *Boards* were more than *half Inch* thick, renders the Thing yet more admirable.

In the upper End of *Rivelin* ſtood a *Tree*, called the *Lord's-Oak*, of twelve *Yards about*, and the *Top* yielded twenty-one *Chord*, cut down about thirteen *Years* ſince.

In *Sheffield-Park*, *An.* 1646, ſtood above one hundred *Trees* worth a thouſand *Pounds*, and there are yet two worth above twenty Pounds. *Still note the Place and Market.*

In the ſame *Park*, about eight Years ago, *Ralph Archdall* cut a Tree that was thirteen *Foot Diameter* at the *Kerf*, or Cutting-place near the *Root*.

In the ſame *Park*, two Years ſince, Mr. *Sittwell*, with *Jo. Magſon*, did chooſe a Tree, which after it was cut, and laid aſide flat upon a level Ground, *Sam. Staniforth*, a *Keeper*, and *Edw. Morphy*, both on Horſe-back, could not ſee over the Tree one anothers *Hat-crowns*. (And ſuch another was the *Marbury-Oak*, mentioned in *Sect.* x. of this *Chapter*.) This Tree was afterwards ſold for twenty Pounds.

In the ſame *Park*, near the old Ford, is an *Oak-tree* yet ſtanding, of *ten Yards Circumference*.

In the ſame *Park*, below the *Conduit-Plain*, is an *Oak-tree* which bears a *Top*, whoſe *Boughs* ſhoot from the *Boal* ſome fifteen, and ſome ſixteen *Yards*. *John Halton.*

Then admitting $15\frac{1}{2}$ *Yards* for the common, or mean Extent of the *Boughs* from the *Boal*, which being doubled, is thirty-one *Yards*; and if it be imagined for a *Diameter*, becauſe the *Ratio* of the *Diameter* to the *Circumference* is $\frac{113}{355}$ it follows 113. 355. : : 97 $\frac{44}{113}$ *Yards*, which is the *Circumference* belonging to this *Diameter*.

Then further it is demonſtrable in *Geometry*, that half the *Diameter* multiplied into half the *Circumference*, produces the *Area* or Quantity of the *Circle*, and that will be found to be $754\frac{347}{452}$, which is 755 ſquare *Yards ferè*.

Then laſtly, if a *Horſe* can be limited to three ſquare *Yards* of Ground to ſtand on (which may ſeem a competent Proportion of three *Yards* long, and one *Yard* broad) then may two hundred and fifty-one *Horſes* be well ſaid to ſtand under the Shade of this *Tree*. But of the more *Northern Cattle* certainly, above twice that Number.

WORKSOPP-PARK.

16. In this *Park*, at the Corner of the *Bradſhaw*-rail, lieth the *Boal* of an *Oak-tree*, which is twenty-nine Foot about, and would be found thirty, if it could be juſtly meaſured; becauſe it lieth upon the Ground; and the Length of this *Boal* is ten Foot, and no *Arm* nor *Branch* upon it. *Kenheim Homer.*

In the ſame *Park*, at the *White-Gate*, a Tree did ſtand that was from Bough-end to Bough-end (that is, from the extream Ends of two oppoſite Boughs) one hundred and eighty Foot; which is witneſſed by *Jo. Magſon* and *Geo. Hall*, and meaſured by them both. *Jo. Magſon, Geo. Hall.*

Then becauſe 180 Foot, or 60 *Yards*, is the *Diameter*; 30 *Yards* will be the *Semidiameter*: And by the former *Analogies*

113. 355 : : 60. $188\frac{1}{2}$

and

1. 30 : : $94\frac{1}{4}$. $2827\frac{1}{2}$

That is, the *Content* of Ground upon which this Tree *perpendicularly* drops, is above 2827 ſquare *Yards*, which is above half an *Acre* of Ground: And the aſſigning three ſquare Yards (as above) for an *Horſe*, there may 942 be well ſaid to ſtand in this Compaſs.

Book III. In the ſame *Park* (after many hundreds ſold, and carried away) there is a *Tree* which did yield *Quarter-cliff Bottoms*, that were a *Yard* ſquare: And there is of them to be ſeen at *Workſop* at this Day, and ſome *Tables* made of the ſaid *Quarter-cliff* likewiſe.

Jo. Magſon.

In the ſame *Park*, in the Place *there* called the *Hawks-neſt*, are *Trees*, *forty Foot* long of *Timber*, which will bear *two Foot* ſquare at the Top-end or Height of *forty Foot*.

If then a *Square*, whoſe Side is *two Foot*, be inſcribed in a *Circle*, the Proportions at that *Circle* are,

	Feet
Diameter	2 : 8284
Circumference	8 : 8858
Area	6 : 2831

And becauſe a *Tun* of *Timber* is ſaid to contain forty ſolid Feet; one of theſe *Columns* of *Oak* will contain above ſix * *Tun* of *Timber* and a Quarter: In this Computation, taking them to be *Cylinders*, and not tapering like the *Segments* of a *Cone*.

* *A Statutable* Tun *of* Timber *is by ſome reckoned forty-three Foot of ſolid: and to a Load fifty.*

Welbeek-Lane.

17. The *Oak* which ſtands in this *Lane*, called *Grindal Oak*, hath at theſe ſeveral Diſtances from the Ground theſe *Circumferences*,

Foot	*Foot*	*Inch*
at 1	33	: 01
at 2	28	: 05
at 6	25	: 07

The Breadth is, from Bough-end to Bough-end, *diametrically* eighty-eight *Foot*; the Height from the Ground to the Top-moſt Bough, eighty-one *Foot* [this *Dimenſion* taken from the Proportion that a *Gnomon* bears to the Shadow] there are three *Arms* broken off and gone, and eight very large ones yet remaining, which are very freſh and good *Timber*,

Eighty-eight Foot is $29\frac{1}{3}$ Yards, which being in this Caſe admitted for the *Diameter* of a *Circle*, the *ſquare Yards* in that *Circumference* will be ſix hundred and ſeventy-ſix *ferè*; and then allowing three Yards (as before) for a Beaſt, leaves two hundred and twenty-five Beaſts, which may poſſibly ſtand under this *Tree*.

But the *Lord*'s *Oak*, that ſtood in *Rivelin*, was in *Diameter* three Yards, and twenty-eight Inches; and exceeded this in *Circumference* three Feet, at one Foot from the Ground.

Shire-Oak.

Hen. Homer.

Shire-Oak is a *Tree* ſtanding in the Ground late Sir *Tho. Hewet*'s, about a Mile from *Workſopp-Park*, which drops into three *Shires*, viz. *York*, *Nottingham* and *Darby*, and the Diſtance from Bough-end to Bough-end, is ninety *Foot* and thirty *Yards*.

This Circumference will contain near ſeven hundred and ſeven ſquare Yards, ſufficient to ſhade two hundred and thirty-five *Horſe*.

Thus far the accurate Mr. *Halton*.

18. Now among ſuch venerable Trees (eſpecially conſpicuouſly placed as this laſt Mr. *Holton* has named) ſhould be ſpared for the moſt noble and natural *Boundaries* to great *Pariſhes*, and *Gentlemens Eſtates*, famous

famous for which is the *Cheſnut-tree* at *Tamworth* in *Glouceſterſhire*; which has contained a ſignal *Boundary* to that *Mannor* in King *Stephen's* Time, as it ſtands upon Record: See *Lib.* iii. *Cap.* vii, xviii. And now before I ſhut up theſe encouraging Inſtances, I am informed by a *Perſon* of Credit, that an *Oak* in *Sheffield-Park*, called the *Ladies Oak*, felled, contained forty-two *Tun* of *Timber*, which had *Arms* that held at leaſt four Foot ſquare for ten Yards in Length; the *Body* ſix Foot of clear *Timber:* That in the ſame *Park* one might have choſen above one thouſand *Trees* worth above ſix thouſand Pounds; another thouſand worth forty thouſand Pounds, *& ſic de cæteris.* To this Mr. *Halton* replies, That it might poſſibly be meant of the *Lord's-Oak* already mentioned, to have grown in *Rivelin:* For now *Rivelin* it ſelf is totally deſtitute of that Iſſue ſhe once might have gloried in of *Oaks*; there being only the *Hall-Park*, adjoyning, which keeps up with its Number of *Oaks.* And as to the Computation of one thouſand *Trees* formerly in *Sheffield-Park*, worth ſix, thouſand Pounds, it is believed there were a *thouſand* much above that Value; ſince in what is now incloſed, it is evident, touching one hundred worth a *thouſand Pounds.* I am inform'd, that an *Oak* (I think in *Shropſhire*) growing lately in a *Copſe* of my Lord *Craven's*, yielded nineteen *Tun* and half of *Timber*, twenty-three *Cord* of *Fire-wood*, two Load of *Bruſh*, and two Load of *Bark:* And my worthy Friend, *Leonard Pinckney*, Eſq; lately firſt *Clerk* of his Majeſty's *Kitchen*, did aſſure me, that one *John Garland* built a very handſome *Barn*, containing five *Bays*, with *Pan*, *Poſts*, *Beams*, *Spars*, &c. of one ſole *Tree*, growing in *Workſopp-Park.* I will cloſe *this* with an *Inſtance* which I greatly value, becauſe it is tranſmitted to me from that honourable and noble Perſon, Sir *Edward Harley: I am* (ſays he) *aſſured by an* Inquiſition *taken about* three hundred Years *ſince*, *that a* Park *of mine*, *and ſome adjacent* Woods, *had not then a* Tree *capable to bear* Acorns; *yet that very* Park *I have ſeen full of great* Oaks, *and moſt of them in the extreameſt* Wane *of* decay. *The* Trunk *of one of theſe* Oaks *afforded ſo much* Timber, *as upon the* Place *would have yielded* fifteen Pounds, *and did compleatly* Seat *with* Wainſcot-Pews *a whole* Church: *You may pleaſe* (ſays he, writing *to* Sir *Rob. Murray*) *to remember when you were* here, *you took Notice of a large* Tree, *newly* fallen; *when it was wrought up*, *it proved very hollow and unſound: One of its* Cavities *contained* two Hogſheads *of* Water: *Another was filled with better Stuff*, Wax *and* Honey: *Notwithſtanding all Defects*, *it yielded*, *beſides* three Tun *of* Timber, twenty-three Cords *of* Wood. *But my own* Trees *are but* Chips *in Compariſon of a* Tree *in the* Neighbourhood, *in which every* Foot *forward*, *one with another*, *was* half *a* Tun *of* Timber; *it bore five Foot* ſquare, forty *Foot* long; *it contained* twenty Tun *of* Timber, *moſt of it ſold for* one Pound *per* Tun; *beſides that*, *the* Boughs *afforded* twenty-five Cords *of* Fuel-wood: *This was called the* Lady-Oak. *Is't not Pity ſuch goodly Creatures ſhould be devoted to* Vulcan, *&c?* So far this noble *Gentleman*, to which I would add *Diræ*, a deep *Execration* of *Iron-Mills*, and I had almoſt ſaid *Iron-Maſters* too,

Quos ego; ſed motos præſtat componere——

for I ſhould never finiſh, to purſue theſe *Inſtances* through our once goodly *Magazines* of *Timber* for all Uſes, growing in this our native

Country,

Book III. *Country*, comparable (as I ſaid) to any we can produce of *elder Times*; and that not only (though chiefly) for the Encouragement of *Planters*, and *Preſervers* of one of the moſt excellent and neceſſary *Materials* in the World for the Benefit of Man; but to evince the continued *Vigour* of *Nature*, and to reproach the Want of *Induſtry* in this *Age* of ours; and (that we may return to the *Argument* of this large *Chapter*) to aſſert the *Procerity* and *Stature* of *Trees* from their very great *Antiquity*: For certainly, if that be true, which is by divers affirmed concerning the *Quercetum* of *Mambre* (where the *Patriarch* entertained his *Angelical* Gueſts) recorded by *Euſebius* to have continued till the Time of *Conſtantine* the *Great*, we are not too prejudicately to cenſure what has been produced for the Proofs of their *Antiquity*; nor for my Part do I much queſtion the *Authorities*: But let this ſuffice; what has been produced being not only an Hiſtorical *Speculation* of *Encouragement* and *Uſe*, but ſuch as was pertinent to the *Subject* under Conſideration, as well as what I am about to add concerning the *Texture* and *ſimilar* Parts of the Body of *Trees*, which may alſo hold in *Shrubs*, and other *lignous* Plants; becauſe it is both a *curious* and *rational* Account of their *Anatomization*, and worthy of the ſagacious *Enquiry* of that learned Perſon, the late Dr. *Goddard*, as I find it entered amongſt other of thoſe precious *Collections* of this *illuſtrious Society*.

19. The *Trunk* or Bough of a *Tree* being cut *tranſverſely* plain and ſmooth, ſheweth ſeveral *Circles* or *Rings* more or leſs *orbicular*, according to the external Figure, in ſome *parallel* Proportion, one without the other, from the *Centre* of the *Wood* to the Inſide of the *Bark*, dividing the Whole into ſo many *circular* Spaces. Theſe *Rings* are more large, groſs, and diſtinct in Colour and Subſtance in ſome kind of *Trees*, generally in ſuch as grow to a great Bulk in a ſhort Time, as *Fir*, *Aſh*, *&c.* ſmaller or leſs diſtinct in thoſe that either not at all, or in a longer Time grow great; as *Quince*, *Holly*, *Box*, *Lignum-vitæ*, *Ebony*, and the like ſad-colour'd and hard *Woods*; ſo that by the Largeneſs or Smallneſs of the *Rings*, and Quickneſs or Slowneſs of the Growth of any Tree may, perhaps, at Certainty be eſtimated.

Theſe *Spaces* are manifeſtly broader on the one Side than on the other, eſpecially the more outer, to a double Proportion, or more; the Inner being near an Equality.

It is aſſerted, that the larger Parts of theſe *Rings* are on the *ſouth* and *ſunny* Side of the *Tree* (which is very rational and probable) inſomuch, that by cutting a Tree *tranſverſe*, and drawing a *Diameter* through the broadeſt and narroweſt Parts of the *Rings*, a *Meridian* Line may be deſcribed.

The outer Spaces are generally narrower than the inner, not only in their narrower Sides, but alſo on their broader, compared with the ſame Sides of the inner: Notwithſtanding which, they are for the moſt Part, if not altogether, bigger upon the whole Account.

Of theſe Spaces, the *outer* Extremities in *Fir*, and the like *Woods*, that have them larger and groſſer, are more denſe, hard, and compact; the inner more ſoft and ſpungy; by which Difference of Subſtance it is, that the *Rings* themſelves come to be diſtinguiſhed.

According as the Bodies and Boughs of *Trees*, or ſeveral Parts of the ſame, are bigger or leſſer, ſo is the *Number*, as well as the *Breadth* of

of the *circular* Spaces greater or leſs ; and the like, according to the *Age*, eſpecially the Number. CHAP. III.

It is commongly, and very probably aſſerted, that a Tree gains a *new* one every Year. In the Body of a great *Oak* in the *New-foreſt*, cut *tranſverſely even* (where many of the Trees are accounted to be ſome hundreds of Years old) three and four hundred have been diſtinguiſhed. In a *Fir-tree*, which is ſaid to have juſt ſo many Rows of Boughs about it, as it is of Years Growth, there has been obſerved juſt *one* leſs, immediately above one Row, than immediately below. Hence ſome probable Account may be given of the Difference between the outer and the inner Parts of the *Rings*, that the outermoſt being newly produced in the *Summer*, the exterior Superficies is condenſed in the *Winter*.

20. In the young Branches and Twigs of *Trees* there is a *Pith* in the Middle, which in ſome, as *Aſh*, and eſpecially *Elder*, equals or exceeds in Dimenſions the reſt of the Subſtance, but waxes leſs as they grow bigger, and in the great Boughs and Trunk ſcarce is to be found: This gives way for the Growth of the inward *Rings*, which at firſt were leſs than the outer (as may be ſeen in any *Shoot* of the firſt Year) and after grow thicker, being it ſelf *abſumed*, or converted into *Wood* ; as it is certain *Cartilages* or *Griſtles* are into *Bones* (in the Bodies of *Animals*) from which, to Senſe, they differ even as much as *Pith* from *Wood*.

Theſe *Rings* or Spaces appearing upon tranſverſe *Section* (as they appear *elliptical* upon *oblique* and ſtraight Lines upon direct *Section*) are no other than the Extremities of ſo many *Integuments*, inveſting the whole *Tree*, and (perhaps) all the Boughs that are of the ſame Age with any of them, or older.

The *Growth* of *Trees Augmentation* in all Dimenſions is acquired, not only by *Acceſſion* of a new *Integument* yearly, but alſo by the *Reception* of Nouriſhment into the *Pores* and Subſtance of the reſt, upon which they alſo become thicker ; not only thoſe towards the Middle, but alſo the reſt, in a thriving *Tree* : Yet the principal Growth is between the *Bark* and *Body*, by *Acceſſion* of a new *Integument* yearly, as hath been mentioned : Whence the cutting of the *Bark* of any Tree or Bough round about, will certainly kill it.

The *Bark* of a *Tree* is diſtinguiſhed into *Rings* or *Integuments*, no leſs than the *Wood*, though much ſmaller or thinner, and therefore not diſtinguiſhable, except in the thick *Barks* of great old *Trees*, and toward the *Inſide* next the *Wood* ; the outer Parts drying and breaking with innumerable *Fiſſures*, growing wider and deeper, as the Body of the *Tree* grows bigger, and mouldering away on the outſide.

Though it cannot appear, by Reaſon of the continual Decay of it, upon the Account aforeſaid ; yet it is probable, the *Bark* of a *Tree* hath had ſucceſſively as many *Integuments* as the *Wood* ; and that it doth grow by Acquiſition of a *new one* yearly on the Inſide, as the *Wood* doth on the Outſide ; ſo that the chief Way, and Conveyance of Nouriſhment to both the *Wood* and the *Bark*, is between them both.

The leaſt *Bud* appearing on the Body of a *Tree*, doth, as it were, make *Perforation* through the ſeveral *Integuments* to the Middle, or very near ; which Part is, as it were, a *Root* of the Bough into the Body of the *Tree* ; and after becomes a *Knot*, more hard than the other *Wood* : And when it is larger, manifeſtly ſhewing it ſelf alſo to

Book III. conſiſt of ſeveral *Integuments*, by the *Circles* appearing in it, as in the Body: More hard, probably, becauſe ſtraitned in Room for Growth; as appears by its diſtending, buckling, as it were, the *Integuments* of the *Wood* about it; ſo implicating them the more; whence a *knotty* Piece of *Wood* is ſo much harder to cleave.

It is probable, that a *Cyon* or *Bud*, upon *Graffing* or *Inoculating*, doth, as it were, *root* it ſelf into the *Stock* in the ſame Manner as the *Branches*, by producing a kind of Knot. Thus far the accurate *Doctor*.

21. To which permit me to *add* only (in Reference to the *Circles* we have been ſpeaking of) what another curious *Enquirer* ſuggeſts to us; *namely*, that they are cauſed by the *Pores* of the *Wood*, through which the *Sap* aſcends in the ſame Manner as between the *Wood* and the *Bark*; and that in ſome *Trees*, the *Bark* adheres to the *Wood*, as the *Integuments* of *Wood* cleave to one another, and may be ſeparated from each other as the *Bark* from the outwardmoſt; and being thus *parted*, will be found on their *Outſides* to repreſent the *Colour* of the outermoſt, contiguous to the *Bark*; and on the *inner* Sides, to hold the *Colour* of the *inner* Side of the *Bark*, and all to have a *deeper* or *lighter* Hue on their *inner Side*, as the *Bark* is on that Part more or leſs *tinged*; which *Tincture* is ſuppoſed to proceed from the *aſcendant Sap*. Moreover, by cutting the *Branch*, the aſcending *Sap* may be examined as well as the *Circles*: It is probable, the more frequent the *Circles*, the *larger* and more copiouſly the *Liquor* will aſcend into it; the *fewer*, the ſooner deſcend from it. That a *Branch* of three *Circles* cut off at *Spring*, the *Sap* aſcending, will be found at *Michaelmas* enſuing; cut again in the ſame *Branch*, or another of equal Bigneſs, to have *one* more than it had at *Spring*; and either at *Spring* or *Fall* to carry a *Circle* of *Pricks* next the *Bark*, at other Seaſons a *Circle* of *Wood* only next it. But *here* the Compariſon muſt be made with Diſtinction; for ſome *Trees* do probably ſhoot new *Tops* yearly till a certain Period, and not after; and *ſome* have perhaps their *Circles* in their *Branches* decreaſed from their *Bodies* to the Extremity of the *Branch*, in ſuch *Oeconomy* and Order, that (for Inſtance) an *Apple-tree Shoot* of this Year has one *Circle* of *Pricks* or *Wood* leſs than the *Graft* of two Years Growth; and that of two Years Growth, may the next Year have one *Circle* more than it had the laſt Year; but this only till that *Branch* ſhoot no more *Grafts*, and then 'tis doubtful whether the outmoſt *Twig* obtain any more *Circles*, or remain at a *Stay*, only nouriſhed, not augmented, in the *Circles*. It would alſo be required, whether the *Circles* of *Pricks* increaſe not till *Midſummer* and after, and the *Circles* of *Wood* from *thence* to the following *Spring*? But this may ſuffice, unleſs I ſhould ſubjoin,

22. The *vegetative* Motion of *Plants*, with the *Diagrams* of the *Jeſuit Kircher*, where he diſcourſes of their ſtupendious *Magnetiſms*, *&c.* could there any thing material be added to what has already been ſo ingeniouſly enquired into by the learned Dr. *Grew*, in his *Anatomy* of *Vegetables*, and that of *Trunks*; where experimentally, and with extraordinary Sagacity, he diſcuſſes the preſent Subject (with entire Satisfaction of the inquiſitive *Reader*) beginning at the *Seeds*, to the Formation of the *Root*, *Trunk*, *Branches*, *Leaves*, *Flower*, *Fruit*, *&c.* where you have the moſt accurate Deſcriptions of the ſeveral *Veſſels* for *Sap*, *Air*, *Juices*, with the ſtupendious *Contexture* of all the *organical* Parts; and than which there can be nothing more fully entertaining:

tertaining: So that what Dr. *Goddard*, and other ingenious Men have but conjecturally hinted, is by this inquiſitive Perſon (and that of the excellent *Malpighius*) evinced by *autoptical* Experience, and profound Reſearch into their *Anatomy*. To all which we may by no means forget the moſt *Lincean* Inſpector Mr. *Ant. Van Leeuwenhoek*, concerning the *Barks* of *Trees*, which he affirms, and *experimentally* convinces, that that *Integument*, namely the *Bark*, was produced from the *Wood*, and not the *Wood* from the *Bark*. But this *Diſcourſe*, together with the *Microſcopical Figure* (being too long to be here inſerted) refers to that moſt induſtrious Perſon's *Letter*, *Tranſact. Numb.* 296. *p.* 1843. Let us therefore proceed to the *Felling*. CHAP. III.

23. It ſhould be in this *Status*, Vigour and Perfection of Trees (which for the *Oak* I take to be about the Age of fifty, or 'twixt that and ſixty Years Growth, where the Soil is natural) that a *Felling* ſhould be celebrated; ſince whilſt our *Woods* are *growing* it is pity, and indeed too ſoon; and when they are *decaying*, too late. I do not pretend that a Man (who has occaſion for *Timber*) is obliged to attend ſo many Ages e'er he fell his *Trees*; but I do by this infer, how highly neceſſary it were, that Men ſhould perpetually be *Planting*; that ſo *Poſterity* might have *Trees* fit for their Service, of *competent*, that is of a *middle* Growth and Age, which it is impoſſible they ſhould have, if we thus continue to deſtroy our *Woods*, without this providential *Planting* in their ſtead, and *Felling* what we do cut down with great Diſcretion, and Regard of the Future. FELLING.

I know it is an *Objection*, or rather an unreaſonable Excuſe of the ſlothful Neglect of ſucceſſive and continual *Planting*, upon ſo tedious an Expectation of what is not likely to be *Timber* in our Time: But as this is quite otherwiſe (provided Men would be earlier at the Work) they might have ſufficient of their own Planting (nay, from the very Rudiment and Seeds) abundantly to recompence their Patience and Attendance, living to the Age Men uſually attain by the common Courſe of Nature; with how much more Improvement to their Children and Poſterity? And this minds me of what's reported of the Emperor *Maximilian* the IId. That by chance finding an antient *Husbandman* ſetting *Date-ſtones*, asks him what his meaning was to plant a Tree that required an *hundred* Years before it bare any *Fruit*? Sir, replies the good Man, *I have* Children, *and they may have more come after them.* At which the *Emperor* was ſo well pleaſed, that he gave him an hundred *Florins*. Was not this like that of *Laertes* to *Ulyſſes*?

But before we go farther with the Hiſtory of the *Stature* and *Magnitude* of *Trees*, we are not to conclude as if all thoſe Trees and Plants, which arrive to that *enormous* Stature and Bulk we have mentioned, were not to be found in other Countries, both of the ſame and other *Species*; but that even of thoſe *Exoticks*, and divers of our own, which ſeem *Pigmies* and *Dwarfs*, compared to thoſe *Giants* in their Native *Climate*, are ſo much greater than in ours; ſince we find what we account but *Shrubs*, are divers of them well-grown Trees, and proſper into uſeful *Timber*; ſuch as *Juniper* (emulating the tall *Cedar*) *Sabine*, *Tamarisk*, *Cornel*, *Phillyrea*, *Granade*, *Lentiſcus*, *Thuya*, *Laurel*, *Bays*, and even *Roſemary* (and other *Frutexes* and *lignous Plants*) ſuperior in Growth and Stature (than with us) where they ſpontaneouſly emerge. Thus not only the *White-Mulberry* wonderfully

Book III. derfully out-ſtrips ours, but thoſe of much ſmaller Stature; as the *Arbutus*, growing on Mount *Athos*, which became a ſpreading Tree; ſo the *Cypreſs* in *Candy* to *Timber*, fit for vaſt Beams and Planks of four Foot breadth: The *Larch* over-topping the *Fir*; nay, the *Myrtle* with us but a *Buſh*, make Staves for *Spears*; the *Oleander*, & *humilis Geniſta*; nay, the *Rhododendron* Poſts and Rafters; and even *Herbaceous Suffrutages*, and amongſt the *Culinary* Furniture; a Grain of *Muſtard* ſpringing to a Tree, whoſe Branches afford Harbour to the Birds of the Air; and the very *Hyſſop*, for a Stalk that carried a *Sponge* to the Mouth of our *Bleſſed Lord* on the *Croſs*. We are told by *Joſephus*, in *Macherontis*'s Reign, there was a Plant of *Rue* growing, and was equal for Height and Thickneſs to any *Fig-tree*, as was ſtill remaining to the Time of *Herod*, and would have ſtood longer, had not the *Jews* cut it down. *Joſ. Antiq. Bell. Jud.* Lib. vii. Cap. xxxviii. How theſe, and indeed all other Vegetables differ in the *North* from thoſe of the *South*, growing on the ſame *Mountain*, Monſieur *Brenier* has ſhewn us; ſome nipt and ſtarved with that *Penetrabile Frigus* and ſcorching *Heat*, quite changing almoſt their very Nature and Conſtitution; ſome of them dry, and yielding nothing but *Leaves*, others of the ſame *Species* are *gummy*, *juicy* and *ſucculent*: The *Lentiſcus* yields *Maſtich* in *Cio*; in *Italy*, the *Oak* bears *Galls*; and the *Fruxinus* exſudes *Manna* in *Calabria*: Thus do *Cælum* and *Solum* govern the *vegetable* Kingdom, for the mutual Supply of the moſt uſeful Productions, eſpecially that of the *Foreſt*; without which, there could be no Commerce in the Word; for ſo has Providence ordained. Let us now proceed with *Felling*.

24. Such as we ſhall perceive to *decay*, ſhould firſt be pick'd out for the *Ax*; and then thoſe which are in their State, or approaching to it; but the very thriving, and manifeſtly improving, indulged as much as poſſible. But to explore the Goodneſs and Sincerity of a *ſtanding Tree*, is not the eaſieſt Thing in the World: We ſhall anon have occaſion to mention my Lord *Bacon*'s Experiment, to detect the *Hollowneſs* of *Timber*: But there is doubtleſs none more infallible, than the *boring* it with a middling *Piercer* made *Auger*-faſhion, and by frequent pulling out, and examining what Subſtance comes along with it, as thoſe who bore the *Earth* to explore what *Minerals* the Place is impregnated with, and as ſound *Cheeſes* are taſted: Some again there are who by digging a little about the *Roots*, will pronounce ſhrewdly concerning the *State* of a *Tree*; and if they find him periſhed at the *Top* (for *Trees* die upwards, as *Men* do from the *Feet*) be ſure the Cauſe lies deep, for 'tis ever a Mark of great Decay in the *Roots*. There is alſo a ſwelling *Vein*, which diſcovers it ſelf eminently above the reſt of the *Stem*, though like the reſt inveſted with *Bark*, and which frequently circles about and embraces the *Tree*, like a Branch of *Ivy*, which is an infallible Indication of *Hollowneſs* and Hypocriſy within.

25. The Time of the *Year* for this deſtructive *Work* is not uſually till about the End of *April* (at which Seaſon the *Bark* does commonly riſe freely) though the Opinions and Practice of Men have been very different: *Vitruvius* is for an *Autumnal Fall*; others adviſe *December* and * *January*: *Cato* was of opinion *Trees* ſhould have firſt borne their *Fruit*, or at leaſt, not till full *ripe*; which agrees with that of the *Architect*, who begins his *Fell* from the Commencement

See §. 35.

* *Poſt ortum Pleiadum à die 6 Kal. Jan. uſq; ad arcturi ortum, ſcil. 8. Kal. Octob.* Veget. *rei milit.* Lib. v. Cap. ix.

of *Autumn* to the *Spring*, when *Favonius* begins to ſpire; and his Reaſon is, for that from *thence*, during all the *Summer*, *Trees* are as it were *going with Child*, and diverting all their Nouriſhment to the *Embryo*, *Leaves* and *Fruit*, which renders them weak and infirm: This he illuſtrates from teeming *Women*, who during their *Pregnancy* are never ſo healthful as after they are delivered of their Burden, and abroad again: And for this Reaſon (ſays he) thoſe *Merchants* who expoſe *Slaves* to *Sale*, will never *warrant* one that is with *Child*: The *Buyer* was (it ſeems) to ſtand to the Hazard. Thus he: But I remember *Monſieur Perrault* in his pompous *Edition* of our *Author*, and learned *Notes* upon this *Chapter*, reproves the *Inſtance*, and corrects the *Text*, *à diſparatione procreationis*, *&c.* to *ad diſparationem*, *&c.* affirming that *Women* are never more ſound and healthy than when they are *pregnant*; the Nutrition derived to the *Infant*, being (according to him) no Diminution or Prejudice to the *Mother*; as being but the Conſumption of that *Humidity* which enfeebles the bearing *Woman*, and thence infers, that the *Compariſon* cannot hold in *Trees*, which become ſo much *ſtronger* by it: But to inſiſt no longer on this; there is no doubt, that whilſt *Trees* abound in over-much, crude, and ſuperfluous Moiſture (though it may, and do contribute to their Production and Fertility, for which Reaſon *Lucina* was invoked by *parturient* Women) they are not ſo fit for the *Ax* as when being diſcharged of it, and that it riſes not in that Quantity as to keep on the *Leaves* and *Fruit*, thoſe *laxed* Parts and *Veſſels* by which the Humour did aſcend, grow dry and cloſe, and are not ſo obnoxious to Putrefaction, and the *Worm*: Hence it is that he cautions us to take Notice of the *Moon*'s Decline, becauſe of her Dominion over *Liquids*, and directs our *Woodman* (ſome Days before he *fells* downright) to make the *Gaſh* or Overture, *uſque ad mediam medullam*, to the End the whole *Moiſture* may exſtil; for that not only by the *Bark* (which thoſe who reſemble *Trees* to *Animals* will have to be *analogous* to *Arteries*) does the *Juice* drain out; but by that more *fatty* and *whiter* Subſtance of the *Wood* itſelf, immediately under the *Bark* (and which our *Carpenters* call the *Sap*, and therefore hew away, as ſubject to rot) which they will have to be the *Veins*: It is (ſay they) the Office of theſe *Arteries* of *Bark*, receiving Nouriſhment from the *Roots*, to derive it to every Part of the *Tree*, and to remand what is crude and ſuperfluous by the *Veins* to the *Roots* again; whence, after it has been better digeſted, it is made to aſcend a ſecond Time by the other *Veſſels* in perpetual *Circulation*; and therefore neceſſary ſo deep an Inciſion ſhould be made as may ſerve to exhauſt both the *venal* and *arterial* Moiſture: But for this nice *Speculation*, I refer the Curious to the already mentioned Dr. *Grew*, and to the learned *Malphighius*, who have made *other*, and far more *accurate* Obſervations upon this Subject: In the mean Time, as to that of the *Worm* in *Timber-trees*, and their rotting, ſometimes within, and ſometimes without; obſerve that ſuch as *gape* and rift outwardly (as does that of the *Oak*, when fell'd) the *Sap* thereby let out, the *Timber* and *Heart* within is found to be much more ſolid than that of the *Cheſnut* and other Trees who keep the Moiſture *within* (however ſeeming ſound outwardly) the *Timber* is frequently extremely rotted and periſh'd. Laſtly, concerning the *Bark*, though ſome are for ſtripping it, and ſo to let the *Tree* ſtand till about *Mid-June*, to preſerve it from the *Worm* (all which Time it will put forth

Book III. *Leaves*, and ſeemingly flouriſh) yet that which is *unbark'd*, is obnoxious to them, contracts ſomewhat a darker Hue, which is the Reaſon ſo many have commended the *Seaſon* when it will moſt freely *ſtrip*) yet were this to be rather conſider'd for ſuch *Trees* as one would leave *round* and *unſquar'd*; ſince we find the wild *Oak*, and many other Sorts, *fell'd* over-late, and when the *Sap* begins to grow proud, to be very ſubject to the *Worm*; whereas, being cut about *Mid-Winter*, it neither *caſts*, *rifts*, nor *twines*; becauſe the cold of the *Winter* does both dry and conſolidate; whiles in *Spring*, and when pregnant, ſo much of the Virtue goes into the *Leaves* and *Branches*: Happy therefore were it for our *Timber*, ſome real *Invention* of *Tanning* without ſo much *Bark* (as the Honourable Mr. *Charles Howard* has moſt ingeniouſly offered) were become univerſal, that *Trees* being more early felled, the *Timber* might be better *ſeaſon'd* and condition'd for its various *Uſes*. But as the Cuſtom is, Men have now Time to *fell* their *Woods*, even from *Mid-winter* to the *Spring*; but never any after the *Summer Solſtice*: And now we ſpeak of *Tanning*, they have in *Jamaica* the *Mangrave*, *Olive*, and a *Third* whoſe *Barks tan* much better than do ours in *England*; ſo as in ſix Weeks the *Leather* is fit to be employed to any Uſe: They have likewiſe there a *Tree*, whoſe *Berries* waſh better and whiter than any *Caſtile-ſoap*.

26. Then for the *Age* of the *Moon*, it has religiouſly been obſerved; and that *Diana*'s Preſidency in *Silvis* was not ſo much celebrated to credit the *Fictions* of the *Poets*, as for the Dominion of that moiſt *Planet*, and her Influence over *Timber*: However experienced Men commend the *Felling* ſoon after a *Full-Moon*, and ſo during all the *Decreaſe*, and ſo to let the *Tree* lie at leaſt three Months, to render the *Timber* ſtrong and * ſolid: For my Part, I am not ſo much inclined to theſe *Criticiſms*, that I ſhould altogether govern a *Felling* at the Pleaſure of this mutable *Lady*; however, there is doubtleſs ſome Regard to be had,

* See *Macrab. Sat.* Lib. vii. Cap. vi.

[a] *Nor is't in vain* Signs *fall and riſe to note.*

Whilſt as to other more *recondit* and deep *Aſtrological* Obſervations, *minute* and *ſcrupulous*, perhaps not altogether to be rejected, both as to the various *Configurations* of the ſuperior Bodies, and Operation on both *vegetable* and *ſenſitive*, eſpecially as to the *Growth* of *Fruit*, *ſowing*, *planting*, and *cultivating* (indicating the proper Seaſons, according to the *Acceſs* and *Receſs* of the greater *Luminaries*, through the *Zodiaque*) It were Ingratitude to impute it all to the *Superſtition* of the *Antients*, or the total Ignorance of *Cauſes* in thoſe great and learned Men (ſuch as *Heſiod*, *Virgil*, *Cato*, *Varro*, *Columella*, *Pliny*, and the reſt) who have ſo freely left us theſe Leſſons; doubtleſs from their long Experience, and extraordinary Penetration and Enquiry into Nature: Let the *Curious* then (for his better Satisfaction) conſult that learned Treatiſe of *Judical Aſtrology*, written by Sir *Chriſtopher Heydon*.

In the mean Time the *old Rules* are theſe:

Fell in the *Decreaſe*, or four Days after *Conjunction* of the two great *Luminaries*; ſome the laſt Quarter of it; or (as *Pliny*) in the

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[a] Nec fruſtra ſignorum obitus ſpeculamur & ortus.

very

very Article of the *Change*, if poſſible; which hapning (ſaith he) in the laſt Day of the *Winter Solſtice*, that *Timber* will prove *immortal*: At leaſt ſhould it be from the *twentieth* to the *thirtieth* Day, according to *Columella*: *Cato* four Days after the *Full*, as far better for the Growth, nay, *Oak* in the *Summer*: But all *vimineous* Trees *ſilente Lunâ*; ſuch as *Sallows*, *Birch*, *Poplar*, *&c.* *Vegetius* for *Ship-timber*, from the *fifteenth* to the *twenty-fifth*; the *Moon* as before; but never during the *Increaſe*, Trees being then moſt abounding with *Moiſture*, which is the only Source of *Putrefaction*: And yet 'tis affirmed upon unqueſtionable *Experience*, that *Timber* cut at any *Seaſon* of the *Year*, in the *old Moon*, or laſt *Quarter*, when the Wind blows weſterly, proves as ſound and good as at any other *Period* whatſoever; nay, all the whole *Summer* long, as in any *Month* of the *Year* (eſpecially *Trees* that bear no *Fruit*). *Theophraſtus* will have the *Fir*, *Pine* and *Pitch-tree* felled when firſt they begin to bud: I enumerate them all, becauſe it may be of great uſe on ſome publick *Emergencies*. CHAP. III.

27. Then for the *Temper*, and Time of *Day*: The Wind low, neither *Eaſt* nor *Weſt* (but *Weſt* of the two) the *Eaſt* being moſt pernicious, and expoſing it to the *Worms*; and for which the beſt Cure is, the plentiful ſobbing it in Water; neither in *froſty*, *wet*, or *dewy* Weather; and therefore never in a *Forenoon*, but when the *Seaſon* has been a good while *dry* and *calm*; for as the *Rain* ſobs it too much, ſo the Wind cloſes and obſtructs the Moiſture from ouſing out. Laſtly, touching the *Species*: Fell *Fir* when it begins to ſpring; not only becauſe it will then beſt quit its *Coat* and ſtrip; but for that they hold it will never decay in Water; which howſoever *Theophraſtus* deduces from the old *Bridge* made of this Material over a certain River in *Arcadia*, cut in this *Seaſon*, is hardly ſufficient to ſatisfie our Enquiry.

28. Previous to this Work of *Felling* is the Advice of our Countryman *Markham*, and it is not to be rejected: Survey (ſaith he) your Woods as they ſtand, immediately after *Chriſtmas*, and then divide the *Species* in your Mind (I add rather in ſome *Note-book* or *Tables*) and conſider for what Purpoſes every ſeveral *Kind* is moſt uſeful, which you may find in the ſeveral *Chapters* of this *Diſcourſe* under every *Head*. After this reckon the *bad* and *good* together, ſo as one may put off the other, without being forced to glean your Woods of all your beſt Timber. This done (or before) you ſhall acquaint your ſelf with the *marketable Prices* of the *Country* where your *Fell* is made, and that of the ſeveral *Sorts*; as what ſo many *Inches* or *Foot ſquare*, and *long*, is worth for the ſeveral *Employments*: What *Planks*, what other *Scantlings*, for ſo many *Spoaks*, *Naves*, *Rings*, *Pales*, *Poles*, *Spurs*, *&c.* as ſuppoſe it were *Aſh*, to ſet apart the largeſt for the *Wheel-wright*, the ſmalleſt for the *Cooper*, and that of ordinary ſcantling for the *Ploughs*, and the *Bruſh* to be *kidded* and ſold by the hundred or thouſand, and ſo all other Sorts of *Timber*, *viz.* *large*, *middling Stuff* and *Poles*, *&c.* allowing the *Waſte* for the Charges of *Felling*, *&c.* all which you ſhall compute with greater Certainty, if you have Leiſure, and will take the Pains to examine ſome of the *Trees* either by your own *Fathom*, or (more accurately) by *girting* it about with a *String*, and ſo reducing it to the *Square*, *&c.* by which Means you may give a near Gueſs; or, you may mark ſuch as you intend to *fell*; and then begin your *Sale* about *Candlemas* till the *Spring*; before which you muſt not (according as our *Cuſtom* is) lay the *Ax* to the *Root*;

Book III. *Root*; though ſome for particular Employments, as for *Timber* to make *Ploughs*, *Carts*, *Axel-trees*, *Naves*, *Harrows*, and the like *Huſbandry-Tools*, do frequently cut in *October*.

Being now entering with your *Workmen*, one of the firſt and moſt principal Things is, the skilful *disbranching* of the *Boal* of all ſuch *Arms* and *Limbs* as may endanger it in the *Fall*, wherein much Forecaſt and Skill is required of the *Woodman*; ſo many excellent Trees being utterly ſpoiled for want of this only Conſideration: And therefore in *Arms* of *Timber*, which are very great, chop a *Nick* under it cloſe to the *Boal*, ſo meeting it with the downright Strokes, it will be ſevered without *ſplicing*.

29. We have ſhewed why ſome, four or five Days before *felling*, bore the Tree croſs-way, others cut a *Kerf* round the Body, almoſt to the very *Pith* or Heart, and ſo let it remain a while; by this Means to drain away the Moiſture, which will diſtill out of the wounded *Veins*, and is chiefly proper for the *moiſter* Sort of Trees: And in this Work the very *Ax* will tell you the Difference of the *Sex*; the *Male* being ſo much harder and browner than the *Female:* But here (and where-ever we ſpeak thus of *Plants*) you are to underſtand the *Analogical*, not *proper* Diſtinctions.

30. But that none may wonder why in many *Authors* of good Note, we find the *Fruit-bearers* of ſome *Trees* called *Males*, and not rather *Females*, as particularly the *Cypreſs*, &c. This prepoſterous *Denomination* had (I read) its Source from very antient *Cuſtom*, and was firſt begun in *Ægypt* (*Diodorus* ſays in *Greece*) where we are told, that the *Father* only was eſteemed the ſole *Author* of *Generation*; the *Mother* contributing only *Receptacle* and *Nutrition* to the *Off-ſpring*, which legitimated their *Mixtures* as well with their *Slaves* as *Free-women:* And upon this Account it was, that even *Trees* bearing *Fruit*, were amongſt them reputed *Males*, and the *ſterile* and barren ones for *Females*; and we are not ignorant how learnedly this *Doctrine* has been lately revived by ſome of our moſt celebrated *Phyſicians:* But ſince the ſame *Arguments* do not altogether *quadrate* in *Trees*, where the *Coition* is not ſo ſenſible (whatever they pretend of the *Palms*, &c. and other *amorous* intertwining of *Roots*) in my Opinion we might with more *Reaſon* call that the *Female* which bears any eminent *Fruit*, *Seed* or *Egg* (from whence *Animals*, as well as *Trees*, not excepting *Man* himſelf, as the learned *Steno*, *Swamerdam* and others have, I think, undeniably made it out) and them *Males* who produce none: But ſometimes too the *Rudeneſs* or leſs *Aſperity* of the *Leaves*, *Bark* and *Grain*, nay, their *Medical* Operations, may deſerve the *Diſtinction*; to which *Ariſtotle* adds *Branchineſs*, leſs *Moiſture*, quick *Maturity*, &c. *Lib.* i. *de Plin. Cap.* iii. All which ſeems to be moſt conſpicuous in *Plum-trees*, *Hollies*, *Aſhes*, *Quince*, *Pears*, and many other Sorts; not to inſiſt on ſuch as may be compelled even to change, as it were, their *Sex*, by *Graffing* and *artificial* Improvements: For whatever we are told of ſuch evident Diſtinction of *Sexes* in ſome (* *Mala Medica*, &c.) I look upon it as hapning rather through ſome accidental *Protruſion*, artificial *Exuberance* or *Depreſſion*, than conſtant and natural: But I return to,

* Maranch, Lib. xi. Cap. xi. *Maris enim pomum ad natum habet quoddam veluti Infantis genitale ejuſdem cum pomo corticis & coloris, Fœminæ Muliebre Pudendum ad veram ejus Effigiem efformatum videtur, quo ſimile magis Sculptor non fingat.*

31. *Felling*,

31. *Felling*, which ſhould be to leave the *Stools* as cloſe to the Ground as poſſible may be, eſpecially if you deſign a *Renaſcency* from the *Roots*; unleſs you will *grub* for a total Deſtruction, or the Uſe of that Part we have already mentioned, ſo far ſuperior in Goodneſs to what is more remote from the *Root*, and beſides the longer you cut and convert the *Timber*, the better for many *Uſes*. Some are of Opinion, that the *ſeedling Oak* ſhould never be cut to improve his *Boal*; becauſe, ſay they, it produces a reddiſh Wood, not acceptable to the *Workman*; and that the Tree which grows on the *Head* of his *Mother*, does ſeldom prove good *Timber*: It is obſerved indeed, that one Foot of *Timber* near the *Root* (though divers I know who otherwiſe opine) and (which is the proper *Kerfe*, or Cutting-place) is worth *three* farther off: And haply, the *Succeſſor* is more apt to be tender, than what was cut off to give it Place; but let this be enquired into at Leiſure: If it be a *Winter-fell*, for *Fuel*, proſtrate no more in a Day than the *Cattle* will eat in two Days, I mean of the *Browſe-wood*, and when that's done, *Kid*, and ſet it up an End, to preſerve it from rotting.

32. Dr. *Plot* recommends the *Disbranching* to be done in the *Spring* before *Felling*, whilſt the *Tree* is ſtanding, that is, from *May* to *Michaelmas*, and ſo to let it continue till the next *Spring*, and disburthen them when felled, as the Cuſtom is in *Staffordſhire*, and the *North*; for exceedingly contributing to a dry Seaſoning, freeing it from the Attack of *Worms* and other accidental Corruption; and thinks that the Prejudice accruing thereby, as to the *Tanner* (in regard of the more difficult *Excortication*) is no Way to be put in Balance with the Advantage and Improvement of the *Timber* for *Paling*, *Building* of *Ships*, *Houſes*, &c. Accounting this Method of that univerſal Importance, as to merit the *Deliberation* of a *Parliament*: In the mean while, by whatever Method you proceed as to this, when once a *Tree* is proſtrate, and the *Bark* ſtripped off, let it ſo be ſet, as it may be beſt dry; then cleanſe the *Boal* of the *Branches* which were left, and ſaw it into Lengths for the *ſquaring*, to which belong the *Meaſure* and *Girth* (as our *Workmen* call it) which I refer to the *Buyer*, and to many ſubſidiary *Books* lately *printed*, wherein it is taught by a very familiar *Calcule mechanical* and eaſy Method.

33. But by none, in my Apprehenſion, ſet forth in a more *facile*, and *accurate* Way, than what that induſtrious *Mathematician*, Mr. *Leybourn*, has publiſhed, in his late *Line of Proportion made eaſy*, and other his *Labours*; where he treats as well as of the *Square* as the *Round*, as 'tis applicable to *Boards* and *Superficials*, and to *Timber* which is *hewed*, or leſs rough, in ſo *eaſy* a *Method*, as nothing can be more deſired. I know our ordinary *Carpenters*, *&c.* have generally upon their *Rulers* a *Line*, which they uſually call *Gunter*'s *Line*; but few of them underſtand how to work from it as they ſhould: And divers *Country Gentlemen*, *Stewards* and *Woodmen*, when they are to *meaſure* rough *Timber* upon the *Ground*, confide much to the *Girt*, which they do with a *String*, at about four or five Foot Diſtance from the Root or great *Extream*: Of the *String's* Length, they take a *Quarter* for the true *Square*, which is ſo manifeſtly erroneous, that thereby they make every *Tree*, ſo meaſured, more than a *fifth* Part leſs than really it is. This *Miſtake* would therefore be reformed; and it were (I conceive) worth the *Seller*'s while, to inſpect it accordingly: Their *Argument* is, that when the *Bark* of a Tree is ſtripped, and the

Body hewed to a *Square*, it will then hold out no more Measure; that which is cut off being only fit for *Fuel*, and the *Expence* of *Squaring* costs more than the *Chips* are worth. To *convince* them of this *Error*, I shall refer and recommend them to the above-named *Author:* And to what the industrious Mr. *Cooke* has so *mathematically* demonstrated: Where also of taking the *Altitude* of *Trees*, the better to judge of the Worth of them, with the *measuring* of *Wood-lands*, &c. together with necessary *Calculations* for the *levelling* of Ground, and removing of *Earth*, drawing of *Plots* and *Figures*; all which are very conducible to the several *Arguments* of this *Silvan Work*. But to proceed:

34. If you are to remove your *Timber*, let the *Dew* be first *off*, and the *South-wind* blow before you *draw* it: Neither should you by any Means put it to Use for three or four *Months* after, (some not till as many *Years*) unless great Necessity urge you, as it did *Duilius*, who, in the *Punic War*, built his *Fleet* of *Timber* before it was *seasoned*, being not above two Months from the very *Felling* to the *Launching*; and as were also those *Navies* of *Hiero* after forty Days; and that of *Scipio*, in the third *Carthaginian* War, from the very *Forest* to the Sea. *July* is a good Time for bringing home your *felled Timber:* But concerning the *Time* and *Season* of *Felling*, a just *Treatise* might be written: Let the learned therefore consult *Vitruvius* particularly on this *Subject*, *Lib.* ii. *Cap.* xix. Also *M. Cato*, *Cap.* xvii. *Plin. Lib.* xvi. *Cap.* xxxi. *Constantinus* and *Hieron. Lib.* iii. *de RR. Veget. Lib.* iv. *Cap.* xxxv. *Columella*, *Lib.* iii. *Cap.* ii. but especially the most ample *Theophrastus* φυτῶν ἱστορίας, *Lib.* v. *Note*, that a *Tun* of *Timber* is *forty* solid *Feet*, a *Load fifty*.

35. To make excellent *Boards* and *Planks*, 'tis the Advice of some, you should *bark* your *Trees* in a fit *Season*, and so let them stand *naked* a full Year before the *felling*; and in some Cases and Grounds, it may be profitable: But let these, with what has been already said in the foregoing *Chapters* of the several *Kinds*, suffice for this *Article:* I shall add one *Advertisement* of *Caution* to those *noble Persons* and others who have *Groves* and *Trees* of Ornament near their *Houses*, and in their *Gardens* in *London*, and the *Circle* of it; especially, if they be of great *Stature*, and well grown; such as were lately the *Groves* in the several *Inns* of *Court*; nay, even that (comparatively, new *Plantation*) in my Lord of *Bedford*'s * *Garden*, &c. and where-ever they stand in the more interior Parts of this *City*; that they be not over-hasty, or by any Means persuaded to cut down any of their old *Trees*, upon hope of new more flourishing *Plantations*, thickning, or repairing Deformities, because they grew so well when first they were set: It is to be considered how exceedingly that pernicious *Smoak* of the *Sea-coal* is increased *in* and about *London* since they were first *planted*, and the Buildings invironing them, and including it in amongst them, which does so universally contaminate the *Air*, that what *Plantations* of *Trees* shall be now begun in any of those Places, will have much ado, great Difficulty, and require a long Time to be brought to any tolerable Perfection: Therefore let them make much of what they have; and though I discourage none, yet I can animate none to cut down the *old*.

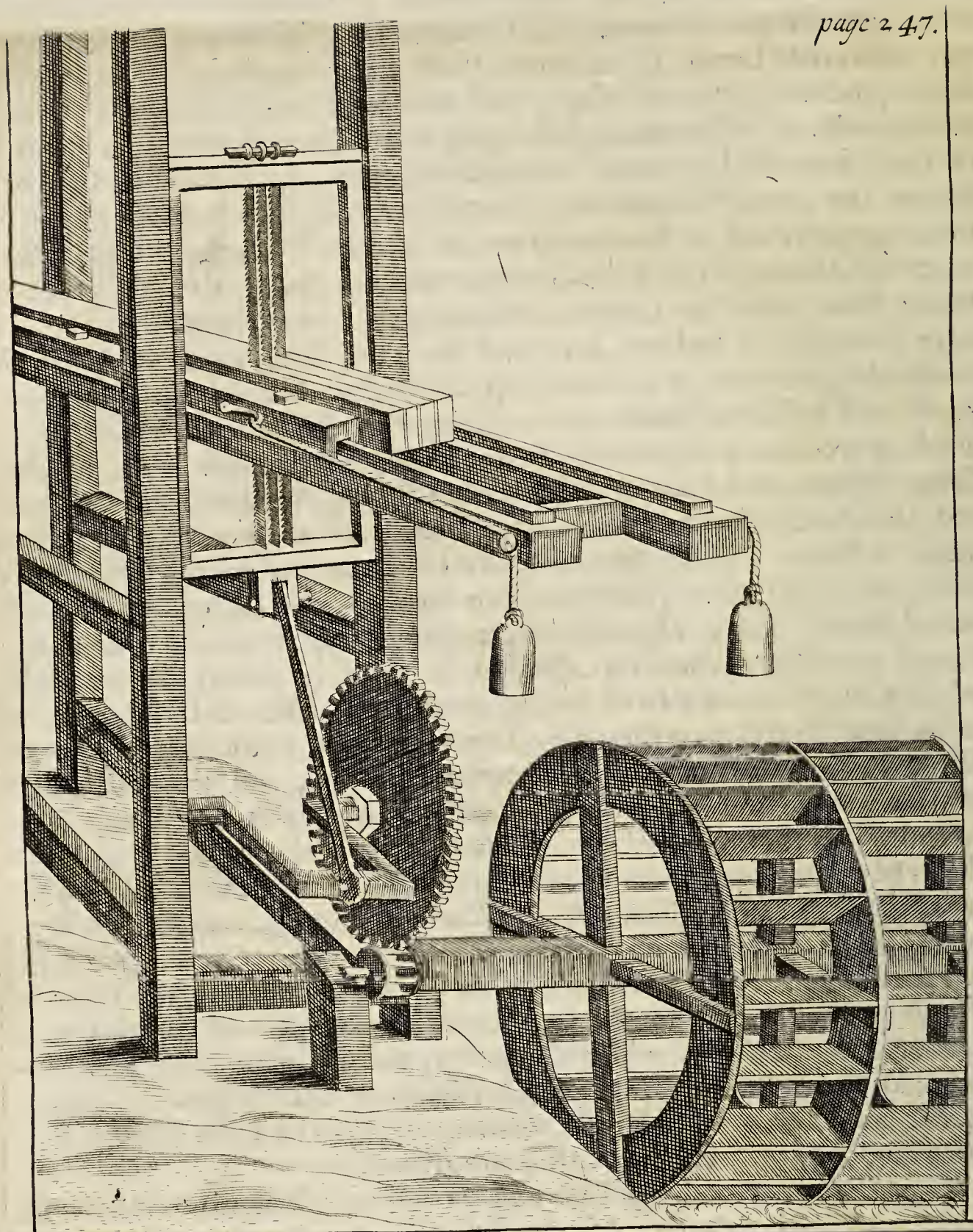
* *Since the first Publication of this Discourse, most of those Groves and Trees have been cut down, to give place for Buildings, and turned into Streets.*

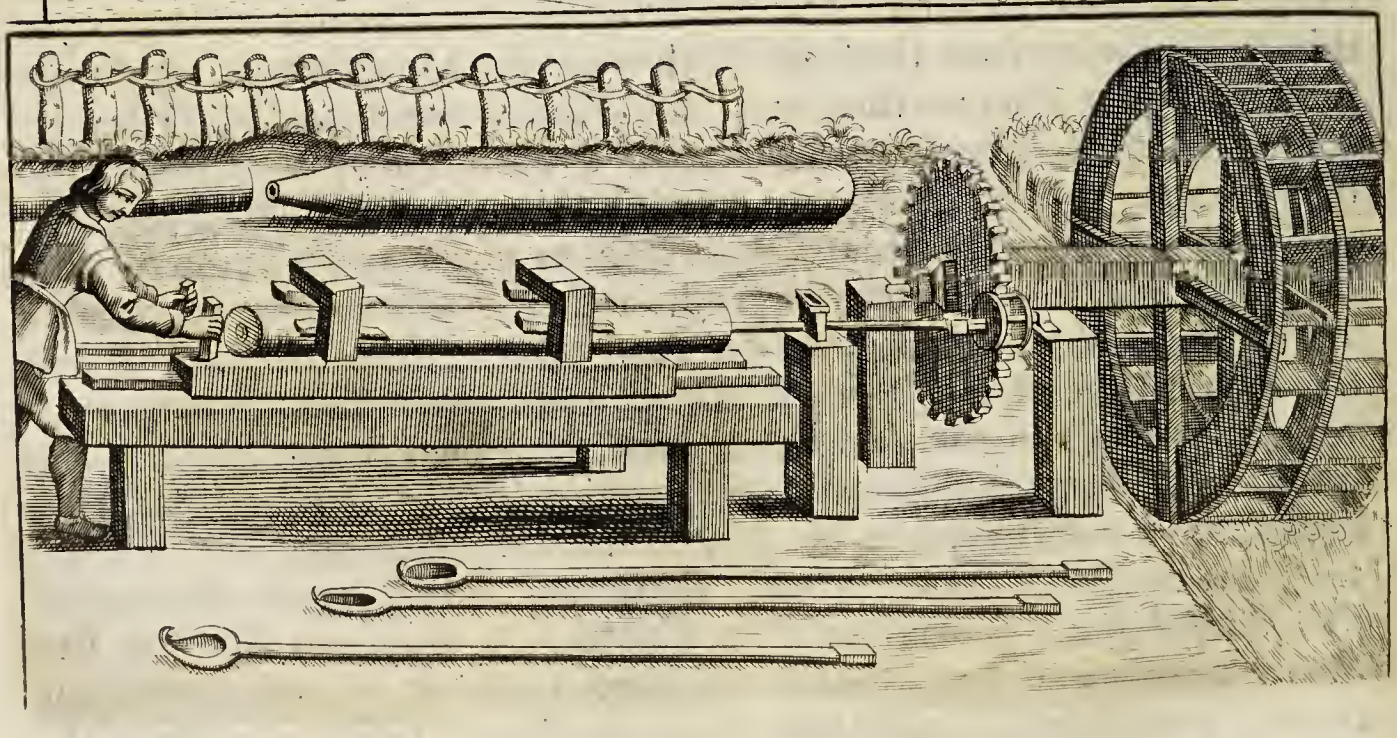
36. And here might now come in a pretty *Speculation*, what should be the *Reason* after general *Fellings*, and *Extirpations* of vast *Woods* of one *Species*, the next *spontaneous* Succession should be of quite a different Sort? We see indeed something of this in our *Gardens* and

Corn-

Corn-fields (as the beſt of *Poets* witneſſes) but that may be much imputed to the Alteration, by Improvement, or Detriment of the *Soil* and other *Accidents*: Whatever the Cauſe may be, ſince it appears not from any univerſal Decay of *Nature* (ſufficiently exploded) I ſhall only here produce Matter of *Fact*, and that it ordinarily happens. As in ſome goodly *Woods* formerly belonging to my *Grandfather*, that were all of *Oak*, after felling, they univerſally ſprung up *Beech*; and 'tis affirmed, by general Experience, that after *Beech*, *Birch* ſucceeds; as in that famous *Wood* at *Darnway* on the *River Tindarne*, in the *Province* of *Murray* in *Scotland*, where nothing had grown but *Oak* in a *Wood* three *Miles* in Length, and happily more *ſoutherly*, it might have been *Beech*, and not *Birch* till the third *Degradation*. *Birches* familiarly grow out of *old* and decayed *Oaks*; but whence this *Sympathy* and Affection ſhould proceed, is more difficult to reſolve, in as much as we do not detect any ſo prolifical and eminent *Seed* in that *Tree*. Some *Accidents* of this Nature may be imputed to the *Winds*, and the *Birds* who frequently have been known to waft and convey *Seeds* to Places widely diſtant, as we have touched in the *Chapter* of *Firs*, &c. *Sect.* iv. *Holly* has been ſeen to grow out of *Aſh*, as *Aſh* out of ſeveral Trees, eſpecially *Haw-thorn*; nay, in an old rotten *Aſh-ſtump*, in a *Place* where no *Aſhes* at all grew by many *Miles* in the whole *County*: And I have had it confidently aſſerted by *Perſons* of undoubted Truth, that they have ſeen a *Tree* cut in the middle, whoſe *Heart* was *Aſh-wood*, and the exterior Part *Oak*, and this in *Northamptonſhire*: And why not as well (though with ſomething more difficulty) as through a *Willow*, whoſe *Body* (as is noted) it has been obſerved to penetrate even to the *Earth*? Detruding the *Willow* quite out of its *Place*, of which a pretty *Emblem* might be conceived: But I purſue theſe *Inſtances* no farther, concluding this *Chapter* with the *Norway Engine*, or *Saw-Mill*, to be either *moved* with the Force of *Water* or *Wind*, &c. for the more expedite *cutting*, and converting of *Timber*; to which we will add another, for the more facile *Perforation* and boring of *Elms*, and other *Timber* to make *Pipes* and *Aquæducts*, and the excavating of *Columns*, to preſerve their *Shafts* from *ſplitting*, to which otherwiſe they are obnoxious.

The *Frames* of both the *Inſtruments* diſcover themſelves ſufficiently to the *Eye*, and therefore will need the leſs Deſcription: There is yet this *Reformation* from thoſe which they uſe both in *Norway*, and *Switzerland*; that whereas they make the *Timber* approach the *Saws*, by certain indented *Wheels* with a *Rochet* (which is frequently out of order) there is in the *firſt Figure*, a Subſtitution of two *Counterpoiſes* of about three hundred Pounds Weight each, as you may ſee at A. A. faſtning the *Cords* to which they append, at the Extreams of *two* moveable *Pieces* of *Timber*, which ſlide on *two* other *Pieces* of fixed *Wood*, by the Aid of certain ſmall *Pullies*, which you may imagine to be within an *Hinge* in the *Houſe*, or *Mill*, by which Means the *Weights* continually *draw* and *advance* the moving *Pieces* of *Wood*, and conſequently the *Timber* to be *ſlit*, faſtned betwixt the ſaid *Pieces*, towards the *Teeth* of the *Saws*, riſing and falling as the Motion of the *Wheel* directs: And on this *Frame* you may put four or five *Saws*, or more if you pleaſe, and place them at what Intervals you think fit, according to the Dimenſions which you deſign in cutting the *Timber* for your *Uſe*; and when the *Piece* is *ſawn*, then one or two





Men with a *Lever* muſt turn a *Roller*, to which there is annext a ſtrong *Cord*, which will draw back the *Piece*, and lift up the *Counterpoiſe*; and ſo the *Piece* put a little towards one Side, direct the *Saws* againſt another. CHAP. III.

The *ſecond Figure* for *Boring*, conſiſts of an *Ax-tree*, to which is faſtned a *Wheel* of *ſix* and *thirty Teeth*, or more, as the Velocity of the Water-motion require; for if it be ſlow, more *Teeth* are requiſite: There muſt alſo be a *Pinion* of *ſix*, turned by the ſaid indented *Wheel*: Then to the *Ax-tree* of the *Pinion* is to be fixed a long *Auger*, as in *Letter* A, which muſt paſs through the *Hole* B, to be opened, and cloſed as occaſion requires, ſomewhat like a *Turner's Lathe*; the *Tree*, or *Piece* of *Timber* to be *bored*, is to be placed on the *Frame* C D, ſo as the *Frame* may eaſily ſlide by the Help of certain ſmall *Wheels*, which are in the *Hollow* of it, and turn upon ſtrong *Pins*, ſo as the *Workman* may ſhove forwards, or draw the *Tree* back, after 'tis faſtned to the *Frame*; that ſo the *Auger* turning the End of the *Tree*, may be applied to it; ſtill remembring to draw it back at every Progreſs of three or four *Inches*, which the *Auger* makes for the cleanſing it from the *Chips*, leſt the *Auger* break: Continue this Work till the Tree, or *Piece* of *Timber*, be *bored* as far as you think convenient; and when you deſire to enlarge the *Hole*, *change your Auger-bits* as the *Figure* repreſents them.

To theſe we might add ſeveral more, as they are deſcribed by *Beſſon*, *Ramelli*, *Cauſe*, and others; as likewiſe *Cranes* and *Machines* for the eaſier *Elevation*, *Moving* and *Tranſporting* of *Timber*; but they are now become familiar, and therefore I omit them.

Notwithſtanding all this, I could wiſh that the moſt effectual and proper *Tools* for *Carpentary-work*, and other uſeful *Inventions* for the raiſing and tranſport of great and maſſive *Timber*, and the like *mechanic Uſes*, were deſcribed and explained by ſome Perſons expert in the *French* Tongue, and proper *Engliſh* Terms; together with the *Figures*, as they are publiſhed in *Monſieur Feliben's Principles of Architecture*, as of greater uſe for our *Plantations* abroad.

The fallen *Leaves* of Trees in *Woods*, which lie ſometimes very thick and deep, ſhould be raked and ſhoveled up; being dry, are very uſeful for the *covering* of tender *Kitchen Garden Plants*, in *Winter*, inſtead of *Litter*; and the reſt, if buried in ſome Hole to *rot*, when dried and reduced to *Powder*, becomes excellent *Mould*: I wonder this *Husbandry* is ſo much neglected.

CHAP. IV.

Of Timber, *the* Seaſoning *and* Uſes, *and of* Fuel.

SEASONING.

SInce it is certain and *demonſtrable*, that all *Arts* and *Artiſans* whatſoever, muſt *fail* and *ceaſe*, if there were no *Timber* and *Wood* in a *Nation* (for he that ſhall take his *Pen*, and begin to ſet down what *Art*, *Myſtery*, or *Trade* belonging any way to *human Life*, could be maintained and exerciſed without *Wood*, will quickly find that I ſpeak no *Paradox*) I ſay, when this ſhall be well *conſidered*, it will appear, that we had better be without *Gold*, than without *Timber*: This Contemplation, and the univerſal *Uſe* of that precious *Material* (which

Book III. yet is not of universal *Use* 'till it be duly prepared) has moved me to design a solemn *Chapter* for the *Seasoning*, as well as to mention some farther particular *Application* of it. The first, and chiefest Use of *Timber*, was doubtless for the building of *Houses* and Habitations to shelter *Men* in: It is in his *Cap.* i. *Lib.* ii. where *Vitruvius* shews, in what simple and plain manner our first *Progenitors* erected their humble *Cottages*; when, like those of *Colchis* and *Phrygia*, they began to creep out of the *subterranean* and cavernous Rocks, and laid the first *Groundsil* upon which they placed the upright Posts, and rudely framed a pointed Roof, *Arboribus perpetuis planis* (on which the *Critics* have vext their Researches) and from which mean Beginning, all the superb and pompous Effects of *Architecture* have proceeded: But to pursue our *Title*, we have before spoken concerning some Preparations of *standing Trees* designed for *Timber*, by a half cutting, disbarking, and the *Seasons* of *drawing* and *using* it.

2. Lay up your *Timber* very dry, in an airy Place (yet out of the *Wind* or *Sun*) and not standing upright, but lying along, one Piece upon another, interposing some short *Blocks* between them, to preserve them from a certain *Mouldiness*, which they usually contract while they *sweat*, and which frequently produces a Kind of *Fungus*, especially if there be any *sappy* Parts remaining.

3. Some there are yet, who keep their *Timber* as moist as they can, by *submerging* it in *Water*, where they let it imbibe, to hinder the *cleaving*; and this is good in *Fir*, both for the better *stripping* and *seasoning*; yea, and not only in *Fir*, but other *Timber*: Lay therefore your *Boards* a *Fortnight* in the *Water* (if *running*, the better, as at some *Mill-pond* Head) and then setting them upright in the *Sun* and *Wind*, so as it may freely pass through them (especially during the Heats of *Summer*, which is the Time of finishing *Buildings*) turn them daily, and, thus treated, even newly sawn *Boards* will Floor far better than a many *Years* dry *Seasoning*, as they call it. But to prevent all possible *Accidents*; when you lay your *Floors*, let the *Joynts* be *shot*, fitted, and tacked down only for the *first Year*, nailing them for good and all the *next*; and by this Means they will lie *staunch*, close, and without *shrinking* in the least, as if it were all of one Piece; and upon this Occasion I am to add an *Observation*, which may prove of no small use to *Builders*; that if one take up *Deal-boards* that may have lain in the *Floor* an *hundred Years*, and *shoot* them again, they will certainly shrink (*toties quoties*) without the former Method. Amongst *Wheel-wrights* the *Water-seasoning* (which hinders the *exhaling* of the *Alcaly Salt* in it, causing the Hardness) is of 'special Regard, and in such Esteem amongst some, that I am assured the *Venetians*, for their Provision in the *Arsenal*, lay their *Oak* some *Years* in it, before they employ it. Indeed the *Turks*, not only *fell* at all Times of the *Year*, without any regard to the *Season*, but employ their *Timber* green and unseasoned; so that though they have excellent *Oak*, it decays in a short Time by this only Neglect.

Elm felled never so *green* for sudden *Use*, if plunged *four* or *five* Days in *Water* (especially *Salt*) which is best, obtains an admirable *Seasoning*, and may immediately be used. I the oftner insist on this *Water-seasoning*, not only as a Remedy against the *Worm*, but for its Efficacy against *Warping* and *Distortions* of *Timber*, whether used within, or exposed to the *Air*. Some again commend *Buryings* in the *Earth*,

Earth, others in *Wheat*; and there be Seaſonings of the *Fire*, as for the ſcorching and hardning of *Piles*, which are to ſtand either in the *Water*, or the *Earth*. CHAP. IV.

[a]——————————— *the* Oak
Explore, ſuſpended in the Chimney-ſmoak:

For that to moſt *Timber* it contributes much to its Duration. Thus do all the *Elements* contribute to the Art of *Seaſoning*. The learned *Interpreter* of *Antonio Neri's* Art of *Glaſs*, Cap. v. ſpeaking of the Difference of *Vegetables*, as they are made uſe of at various *Seaſons*, obſerves from the *Button-mould-makers*, in thoſe *Woods* they uſe, that *Pear-trees*, cut in *Summer*, work tougheſt, but *Holly* in the *Winter*, *Box* hardeſt about *Eaſter*, but mellow in the *Summer*, *Hawthorn* kindly about *October*, and *Service-tree* in *Summer*.

4. And yet even the greeneſt *Timber* is ſometimes deſirable for ſuch as *Carve* and *Turn*; but it choaks the Teeth of our *Saws*; and for *Doors*, *Windows*, *Floors*, and other cloſe Works, it is altogether to be rejected, eſpecially where *Walnut-tree* is the *Material*, which will be ſure to ſhrink: Therefore it is beſt to chuſe ſuch as is of *two* or *three* Years *Seaſoning*, and that is neither moiſt nor over-dry; the *Mean* is beſt. Sir *Hugh Plat* informs us, that the *Venetians* uſe to burn and ſcorch their *Timber* in a flaming *Fire*, continually turning it round with an *Engine*, till they have gotten upon it an hard, black, *coaly* Cruſt; and the Secret carries with it great Probability; for that the Wood is brought by it to ſuch a Hardneſs and Dryneſs, *ut cùm omnis putrefactio incipiat ab humido*, nor *Earth*, nor *Water* can penetrate it; I my ſelf remembring to have ſeen *Charcoals* dug out of the Ground amongſt the Ruins of ancient Buildings, which have, in all Probability, lain covered with Earth above fifteen hundred Years.

5. *Timber* which is *cleft*, is nothing ſo obnoxious to *rift* and cleave as what is *hewn*; nor that which is *ſquared*, as what is *round:* and therefore where Uſe is to be made of huge and maſſy *Columns*, let them be *bored* through from End to End; it is an excellent Preſervative from ſplitting, and not *unphiloſophical*; though to cure this Accident, the rubbing them over with a *Wax-cloth* is good, Painter's *Putty*, *&c.* or before it be *converted*, the ſmearing the *Timber* over with *Cow-dung*, which prevents the Effects both of *Sun* and *Air* upon it; if of Neceſſity it muſt lie expoſed: But beſides the former Remedies, I find *this*, for the cloſing of the Chops and Clefts of *green Timber*, to anoint and ſupple it with the *Fat* of *powdered Beef-broth*, with which it muſt be well ſoaked, the *Chaſms* filled with *Spunges* dipt into it; *this* to be twice done over: Some *Carpenters* make uſe of *Greaſe* and *Saw-duſt* mingled; but the firſt is ſo good a Way (ſays my *Author*) that I have ſeen *Wind-ſhock Timber* ſo exquiſitely cloſed, as not to be diſcerned where the Defects were: This muſt be uſed when the *Timber* is green.

6. We ſpake before of *ſquaring*, and I would now recommend the *quartering* of ſuch *Trees* as will allow uſeful and competent *Scantlings*, to be of much more Durableneſs and Effect for Strength, than where (as Cuſtom is, and for want of Obſervation) whole *Beams* and *Timbers* are applied in *Ships* or *Houſes*, with *Slab* and all about them, upon falſe Suppoſitions of Strength beyond theſe *Quarters:* For there is in all

[a] Et ſuſpenſa focis explorit robora fumus. *Geor.* i.

Book III. *Trees* an evident *Interſtice*, or Separation, between the *Heart* and the reſt of the *Body*, which renders it much more obnoxious to decay and miſcarry, than when they are treated and *converted* as I have deſcribed it; and it would likewiſe ſave a world of *Materials* in the *Building* of great *Ships*, where ſo much excellent *Timber* is hew'd away to ſpoil, were it more in Practice. Finally,

7. I muſt not omit to take Notice of the *Coating* of *Timber* in *Work*, uſed by the *Hollanders*, for the Preſervation of their *Gates*, *Portculliſes*, *Draw-bridges*, *Sluices*, and other huge *Beams* and *Contignations* of *Timber* expoſed to the *Sun*, and perpetual Injuries of the *Weather*, by a certain Mixture of *Pitch* and *Tar*, upon which they ſtrew ſmall Pieces of *Cockle*, and other *Shells*, beaten almoſt to *Powder*, and mingled with *Sea-ſand*, or the *Scales* of *Iron*, beaten ſmall and ſifted, which *incruſts*, and arms it after an incredible Manner againſt all theſe Aſſaults and foreign Invaders: But if this ſhould be deem'd more obnoxious to *firing*, I have heard that a *Waſh* made of *Allum*, has wonderfully protected it againſt the Aſſaults even of that devouring *Element*, and that ſo a *wooden Tower* or *Fort* at the *Piræum*, an *Athenian Port*, was defended by *Archelaus*, a Commander of *Mithridates*, from the great *Sylla*: But you have ſeveral *Compoſitions* for this Purpoſe in that incomparable Treatiſe of *Naval Architecture*, written in the *Low-Dutch* by *N. Witſen*, *Chap.* vi. *Part* i. The Book is in *Folio*, and he that ſhould well tranſlate it into our *Language* (which I much wonder has not yet been done) would deſerve well of the Publick.

8. *Timber* that you have occaſion to lay in *Mortar*, or which is in any Part contiguous to *Lime*, as *Doors*, *Window-Caſes*, *Groundſils*, and the Extremities of *Beams*, *&c.* have ſometimes been capped with molten *Pitch*, as a marvelous Preſerver of it from the burning and deſtructive Effects of the *Lime*; but it has ſince been found rather to heat and decay them, by hindering the *Tranſudation* which thoſe Parts require; better ſupplied with *Loam* or Strewings of *Brick-duſt*, or Pieces of *Boards*; ſome leave a ſmall Hole for the *Air*. But though *Lime* be ſo deſtructive whilſt *Timber* lies thus *dry*, it ſeems they mingle it with *Hair*, to keep the *Worm* out of *Ships* which they *ſheath* for *Southern Voyages*; though it is held much to retard their Courſe: Wherefore the *Portugueze* ſcorch them with Fire, which often proves very dangerous; and indeed their *Timber* being harder, is not ſo eaſily penetrable; and therefore have ſome been thinking of finding out ſome tougher Sorts of *Materials*, eſpecially of a *bitter* Sap; ſuch as is reported to be the *Wood* of a certain *Indian Pear*: And ſome talk of a *Lixivium* to do the Feat; others of a *pitchy* Subſtance to be extracted out of *Sea-coal*; but nothing has yet been found more expedient, than the late Application of thin *Lamins* of *Sheet-lead*, if that alſo be no Impediment to their ſailing: However, there are many Kind of *Woods* in the *Weſtern-Indies* (beſides the *Acajou*) that breed no *Worms*, and ſuch is the *white* Wood of *Jamaica*, proper enough to build *Ships*. In the mean Time, let me not omit what the learned Dr. *Liſter*, in his *Notes* upon *Godarius* of *Inſects*, ſays, That he is perſuaded there could not be a more probable Expedient to diſcover what Kind of *Timber* were beſt for *Sheathing*, than to tie certain poliſhed Pieces of *Wood* (cut like *Tallies*) to a *Buoy*, in ſome Waters and Streams much infeſted with the *Worms*; for that Sort of *Wood* which the *Worm* ſhould refuſe, would

in all Reaſon be choſen for the Uſe deſired. The *Indies* being ſtored with greater Varieties of *Timber* than *Europe*, it were probable there might ſome be found, which that Kind of *River-worm* will never attack. CHAP. IV.

9. For all Uſes, *that* Timber is eſteemed the beſt, which is the moſt *ponderous*, and which, lying long, makes deepeſt *Impreſſion* in the *Earth*, or in the *Water*, being *floated*; alſo what is without *Knots*, yet firm, and free from *Sap*; which is that *fatty*, *whiter*, and *ſofter* Part, called by the Antients *Alburnum*, which you are diligently to hew away: *Here* we have much ado about the *Torulus* of the *Fir*, and the Φλοιώδης κύκλος by both *Vitruvius* and *Theophraſtus*, which I paſs over. You ſhall perceive ſome which has a *ſpiral* Convolution of the *Veins*; but it is a Vice proceeding from the Severity of unſeaſonable *Winters*, and Defect of good Nutriment.

10. My Lord *Bacon*, *Exp.* 658. recommends for *Trial* of a *ſound* or *knotty* Piece of *Timber*, to cauſe one to ſpeak at *one* of the *Extreams* to his Companion liſtning at the *other*; for if it be *knotty*, the *Sound* (ſays he) will come abrupt.

11. Moreover, it is expedient that you know which is the *Grain*, and which are the *Veins* in *Timber* (whence the Term *fluviari arborem*) becauſe of the Difficulty of working againſt it: Thoſe therefore are counted the *Veins* which grow largeſt, and are ſofter, for the Benefit of *Cleaving* and *Hewing*; *that* the *Grain*, or *Pectines*, which runs in Waves, and makes the diverſe and beautiful *Chamfers* which ſome *Woods* abound in to Admiration. The *Fir-tree*, *horizontally* cut, has two *Circles* of different *Fibres*, which (when the *Timber* comes to be cleft in the middle) ſeparates into *four* different *Waves*, whence *Pliny* calls them *quadrifluvios*, and it is to be noted, that the *nodous*, and knotty Part of theſe ſort of Trees, is that only which grows from the firſt *Boughs* to the *Summit*, or Top, by *Vitruvius* termed the *Fuſterna*, which both *Baldus* and *Salmaſius* derive *à Fuſte*. The other *clean* Part, free of theſe *Boils* (being that which when the ſappy *Slab* is cut away, is the beſt) he calls *Sapiena*. Finally, the *Grain* of *Beech* runs two contrary Ways, and is therefore to be wrought accordingly; and indeed the *Grain* of all *Timber* ought well to be obſerved; ſince the more you work *according to it*, eſpecially in *cleaving*, and the leſs you *ſaw*, the ſtronger will be your Work.

12. *Here* it may be fitly enquired, whether of all the Sorts we have enumerated, the *old* or the *younger* Trees do yield the faireſt *Colour*, pleaſant *Grain* and *Gloſs* for *Wainſcot*, *Cabinets*, *Boxes*, *Gun-ſtocks*, &c. and what kind of *Pear* and *Plum-tree* give the deepeſt *Red*, and approaches neareſt in Beauty to *Braſil*: 'Tis affirmed the *old Oak*, *old Walnut*, and *young Aſh*, are beſt for moſt *Uſes*, and yet for *Ship-carpentry* this does not always hold; nor does the Bigneſs of it ſo much recommend it, becauſe 'tis commonly a Sign of *Age*, which (like to very *old Men*) is often brittle and effete. *Black* and *thorny Plum-tree* is of the deepeſt *Oriency*; but whether theſe belong to the *Foreſt*, I am not yet ſatisfied, and therefore have aſſigned them no *Chapter* apart. But now I ſpeak of the *Plum-tree*, I am aſſured by a worthy *Friend*, that the *Gum* thereof diſſolved in *Vinegar*, does cure the moſt contumacious *Tetters*, when all other Remedies, outward or inwardly applied, nothing availed.

13. Laſtly, I would alſo add ſomething concerning what *Woods* are obſerved to be moſt *ſonorous* for *Muſical Inſtruments*: We as yet

Book III. detect few but the *German Aer*, which is a *Species* of *Maple*, for the *Rims* of *Viols*, and the choiceſt and fineſt grained *Fir* for the *Bellies*: The *Finger-boards*, *Back* and *Ribs*, I have ſeen of *Yew*, *Pear-tree*, *&c.* but *Pipes*, *Recorders*, and *Wind-Inſtruments*, are made both of hard and ſoft *Woods*; I had lately an *Organ* with a Sett of *Oaken-Pipes*, which were the moſt *ſweet* and *mellow* that were ever heard; it was a very old *Inſtrument*, and formerly, I think, belonging to the Duke of *Norfolk*. We ſhall ſay nothing of the other various Uſes of *Timber* ſuperſtitiouſly mentioned, when we find they might not carve the Statues of the *Pagan Gods* of every ſort of Wood, *ne quovis ex ligno fiat Mercurius*; but of this by the Way.

14. For the *Place* of Growth, that *Timber* is eſteemed *beſt* which grows moſt in the *Sun*, and on a dry and hale Ground; for thoſe *Trees* which *ſuck*, and *drink* little, are moſt hard, robuſt, and longeſt lived, Inſtances of *Sobriety*. The *Climate* contributes much to its *Quality*, and the *Northern* Situation is preferred to the reſt of the *Quarters*; ſo as that which grew in *Tuſcany* was of Old thought better than that of the *Venetian* Side; and yet the *Biſcay Timber* is eſteemed better than what they have from *colder* Countries: And *Trees* of the *wilder Kind*, and *barren*, than the over-much cultivated and great Bearers: But of this already.

15. To omit nothing, *Authors* have ſummed up the *Natures* of *Timber*, as the hardeſt *Ebony*, *Box*, *Larch*, *Lotus*, *Terebinth*, *Cornus*, *Yew*, *&c.* and though theſe *indurated Woods* be too ponderous for *Ship-carpentry*, yet there have been *Veſſels* built of them by the *Portugueze* in *America*; in which the *Planks*, and innermoſt *Timbers* had been ſawed very thin for Lightneſs ſake, and the *Knee-timber* put together of divers ſmall Pieces, by Reaſon of the Inflexibleneſs of it, both which could not but render the *Ships* very weak: In the mean Time, the *Perfection* of theſe hard *Materials* conſiſts much in their receiving the moſt exquiſite *Politure*; and for this, *Linſeed*, or the ſweeter *Nut-Oil*, does the Effect beſt: *Pliny* gives us the *Receipt*, with a Decoction of *Walnut-ſhells*, and certain *wild Pears*: Next to theſe, *Oak* for *Ships* and *Houſes* (or more minutely) the *Oak* for the *Keel*, the *Robur* for the *Prow*, *Walnut* the *Stern*, *Elm* the *Pump*. *Furnerus*, *Lib.* i. *Cap.* xxii. conceives the *Ark* to have been built of ſeveral Woods; *Cornel*, *Holly*, *&c.* for *Pins*, *Wedges*, *&c.* *Cheſnut*, *Horn-beam*, *Poplar*, *&c.* Then for *Bucklers* and *Targets* were commended the more ſoft and moiſt, becauſe apt to cloſe, ſwell, and make up their Wounds again; ſuch as *Willow*, *Lime*, *Birch*, *Alder*, *Elder*, *Aſh*, *Poplar*, &c.

The *Robur*, or *Wild-Oak* Timber, beſt to ſtand in Ground; the *Quercus* without; and our *Engliſh*, for being leaſt obnoxious to *ſplinter*, and the *Iriſh* for reſiſting the *Worm* (tough as *Leather*) are doubtleſs for *Shipping* to be preferred before all other: The *Cypreſs*, *Fir*, *Pines*, *Cedar*, &c. are beſt for *Poſts* and *Columns*, becauſe of their *erect* Growth, natural and comely *Diminutions*. Then again it is noted, that *Oriental Trees* are hardeſt towards the *Cortex* or *Bark*, our *Weſtern* towards the *Middle*, which we call the *Heart*; and that *Trees* which bear no *Fruit*, or but little, are more *durable* than the more pregnant. It is *noted* of *Oak*, that the *Knot* of an inveterate *Tree*, juſt where a luſty *Arm* joins to the *Stem*, is as curiouſly *veined* as the *Walnut*, which omitted in the *Chapter* of the *Oak*, I here obſerve

ſerve. The *Palmeto* growing to that prodigious Height in the *Barbados*, and whoſe Top bears an excellently taſted *Cabbage*, grows ſo wonderfully hard, that an *Edge-tool* will ſcarce be forced into it. CHAP. III.

Pines, *Pitch*, *Alder* and *Elm* are excellent to make *Pumps* and *Conduit-pipes*, and for all *Water-works*, &c. *Fir* for *Beams*, *Bolts*, *Bars*, being tough, and not ſo apt to break as the hardeſt *Oak*: In Sum, the more *oderiferous Trees* are the more durable and laſting; and yet I conceive that well-ſeaſoned *Oak* may contend with any of them; eſpecially, if either preſerved under Ground, or kept perfectly dry: In the mean Time, as to its Application in *Shipping*, the beſt of it ought to be employed for the *Keel* (that is, within, elſe *Elm* exceeds) the main *Beams* and *Rafters*, whilſt for the ornamental Parts, much ſlighter *Timber* ſerves: One *Note* more is requiſite, namely, that great Care be had to make the *Trundels* of the beſt, tougheſt, and ſincereſt Part, many a *Veſſel* having been loſt upon this Account; and therefore dry and young *Timber* is to be preferred for this, and for which the *Hollanders* are plentifully furniſhed out of *Ireland*, as *Nicholas Witſen* has himſelf acknowledged.

Is it not after all this to be deplored, that *we* who have ſuch perpetual Uſe and Convenience for *Ship-timber*, ſhould be driven to procure it of *Foreign Stores*, ſo many thouſand Loads, at intolerable Prices: But this we are obliged to do and ſupply from the *Eaſtern Countries*, as far as *Norway*, *Poland*, *Pruſſia*, *Dantzick*, and farther, even from *Bohemia*, though greatly impaired by *ſobbing* ſo long in the Paſſage: But of this the moſt induſtrious, and our worthy Friend Mr. *Pepys* (late *Secretary* of the *Admiralty*) has given a juſt and profitable Account in his *Memoirs*.

16. Here farther for the *Uſes* of *Timber*, I will obſerve to our *Reader* ſome other *Particulars*, for Direction both of the *Seller* and *Buyer*, applicable to the ſeveral *Species*: And firſt of the two Sorts of *Lathes* allowed by *Statute*, *one* of *five*, the *other* of *four Foot* long, becauſe of the different Intervals of *Rafters*: That of *five* has one hundred to the *Bundle*, thoſe of *four* one hundred and twenty; and to be in *Breadth* one *Inch* and *half*, and half Inch thick; of either of which Sorts there are *three*, *viz. Heart-oak*, *Sap-lathes*, and *Deallathes*, which alſo differ in *Price*: The *Heart-oak* are fitteſt to lie under *Tyling*; the *ſecond* Sort, for *Plaſtering* of *Side-walls*; and the *third* for *Ceilings*, becauſe they are ſtreight and even.

17. Here we will gratifie our curious *Reader* with as curious an *Account* of the comparative *Strength* and *Fortitude* of the ſeveral uſual Sorts of *Timber*, as upon Suggeſtions previous to this *Work*, it was ſeveral Times experimented by the *Royal Society*, though omitted in the firſt *Impreſſion*, becauſe the *Trials* were not compleat as they now thus ſtand in our *Regiſter*.

MARCH 23. 1663.

The *Experiment* of breaking ſeveral Sorts of *Wood* was begun to be made: And there were taken three Pieces of ſeveral Kinds; of *Fir*, *Oak* and *Aſh*, each an *Inch* thick, and two *Foot* long, the *Fir* weighed 8^{1} *Ounces*, and was broken with two hundred Pounds Weight: The *Oak* weighed $12\frac{3}{4}$ *Ounces*, broken with two hundred and fifty Pounds Weight; the *Aſh* weighed $10\frac{1}{4}$ *Ounces*, broken with three hundred and twenty-five Pounds Weight.

Besides, there were taken three Pieces of the same Sort of *Wood*, each of $\frac{1}{2}$ *Inch* thick, and one *Foot* long: The *Fir* weighed 3j, and was broken with $\frac{5}{8}$ of an Hundred: The *Oak* weighed $1\frac{1}{8}$ *Ounces*, broken with $\frac{5}{8}$ of an Hundred: The *Ash* weighed $1\frac{1}{8}$ *Ounces*, broken with an hundred Pounds.

Again, there was a Piece of *Fir* $\frac{1}{2}$ *Inch* square, and two *Foot* long, broken with thirty-three Pounds; a Piece of $\frac{1}{2}$ *Inch* thick, one *Inch* broad, and seven *Foot* long, broken with one Hundred Weight *edge-wise*; and a Piece of $\frac{1}{2}$ *Inch* thick, $1\frac{1}{2}$ broad, two *Foot* long, broken with one hundred and twenty-five Pounds Weight, also *edge-wise*.

The *Experiment* was ordered to be repeated, and recommended by the *President* to Sir *William Petty* and Dr. *Hook*; and it was suggested by some of the *Company*, that in these *Trials* Consideration might be had of the *Age*, *Knottiness*, *Solidity*, several *Soils* and *Parts* of *Trees*, &c. and Sir *Robert Murray* did particularly add, that it might be observed how far any Kind of *Wood* bends before it breaks.

March — 1664.

The *Operator* gave an *Account* of more Pieces of *Wood* broken by Weight, *viz.* a Piece of *Fir* four *Foot* long, two *Inches* fifty-three *Ounce Weight*, broken with eight hundred Pounds Weight, and very little bending, with seven hundred and fifty; by which the *Hypothesis* seems to be confirmed, that in *similar* Pieces the *Proportion* of the *Breaking-weight* is according to the *Basis* of the *Wood broken*. Secondly, of a Piece of *Fir* two *Foot* long, one *Inch* square, cut away from the middle both Ways to half an *Inch*, which supported two hundred and fifty Pounds Weight before it broke, which is more by fifty Pounds than a Piece of the same *Thickness* every Way was formerly *broken* with; the Difference was guessed to proceed from the more Firmness of this other Piece.

His *Lordship*, the *President*, was desired to contribute to the Prosecution of this *Experiment*, and particularly to consider what *Line* a *Beam* must be *cut* in, and how *thick* it ought to be at the *Extream*, to be equally strong: Which was brought in *April* 13. but I find it not *entered*.

April 20. 1664.

The *Experiment* of breaking *Wood* was prosecuted, and there were taken *two* Pieces of *Fir*, each *two Foot* long, and one *Inch square*, which were broken, the one *long-ways* with three hundred Pounds Weight, the *other transverse-ways* with $2\frac{1}{2}$ *Hundred*. Secondly, *two* Pieces of the same *Wood*, each of $\frac{3}{4}$ of an *Inch square*, and *two Foot* long, broken, the one *long-ways* with $1\frac{1}{4}$ *Hundred*; the other *transverse*, with one hundred Pounds Weight. Thirdly, *one* Piece of *two Foot* long $\frac{1}{2}$ *Inch square*, broken *long-ways* with eighty-one Pounds: Fourthly, one Piece cut out of a crooked *Oaken-billet*, with an arching *Grain*, about $\frac{3}{4}$ *Inch square*, *two Foot* long, broken with $\frac{3}{4}$ *Hundred*.

June 29. 1664.

There were made several *Experiments* more of breaking *Wood*: First, a Piece of *Fir*, $\frac{1}{2}$ *Inch Diameter*, and three *Inches* long, at which Distance the Weight hung, broke in the *Plane* of the *Grain horizontally*,

tally, with 66¾ ℔ whereof 15 ℔ *Troy*; *vertically*, with 2 ℔ more. Also *Fir* of ¼ *Inch Diameter*, and 1½ *Inch* long, broke *vertically* with 20 ℔, and *horizontally* with 19 ℔. *Elm* of ½ *Inch* Diameter, and three *Inches long*, broke *horizontally* with 47 ℔; *vertically* with 23 ℔. *Elm* of ¼ *Inch Diameter*, and 1½ *Inch long*, broke *horizontally* with 12 ℔; *vertically* with 12 ℔, which is *Note-worthy*.

JULY 6. 1664.

The *Experiment* of breaking *Woods* profecuted: A Piece of *Oak* of ½ *Inch Diameter*, and three *Inches long*, at which Diftance the Weight hung, broke *horizontally* with 48 ℔; *vertically* with 40 ℔. *Aſh* of ½ *Inch Diameter*, and 3 *Inch long*, *horizontally* with 77 ℔; *vertically* with 75 ℔. *Aſh* of ½ *Inch Diameter*, and 1½ *Inch long*, *horizontally* with 19 ℔; *vertically* with 10 ℔, &c. Thus far the *Regiſter*.

In the mean Time I learn, that in the *Mines* of *Mendip*, Pieces of *Timber*, of but the Thickneſs of a Man's *Arm*, will ſupport ten Tun of *Earth*; and that ſome of it has lain 200 *Years*, which is yet as firm as ever, growing tough and black; and being expoſed two or three Days to the *Wind* and *Sun*, ſcarce yields to the *Ax*.

18. Here might come in the *Problems* of *Cardinal Cuſanus*, in *Lib.* iv. *Idiotæ dial.* 4to, concerning the different *Velocity* of the *Aſcent* of *great* Pieces of Timber, before the *ſmaller*, ſubmerged in *Water*; as alſo of the *Weight*; as *v. g.* Why a Piece of *Wood* 100 ℔ Weight, poiſing more in the *Air* than 2 ℔ of *Lead*, the 2 ℔ of *Lead* ſhould ſeem to weigh (he ſhould ſay *ſink*) more in * the *Water*? Why *Fruits* being cut off from the *Tree*, weigh *heavier* than when they were growing? With ſeveral the like *Paradoxes*, haply more *curious* than *uſeful*, and therefore we purpoſely omit them; but ſo may we not the Recommendation of that uſeful *Treatiſe* of *Duplicate Proportion*, together with a new *Hypotheſis* of *Elaſtic* or Springy Bodies, to ſhew the Strengths of Timbers, and other *homogeneous* Materials applied to *Buildings*, *Machines*, &c. as it is publiſhed by that admirable *Genius*, the learned Sir *William Petty*. To which we join that Part of Dr. *Grew*'s Comparative *Anatomy* of *Trunks*, as variouſly fitted for *Mechanical Uſes*; where that moſt induſtrious and curious Searcher into Nature, deſcribes to us whence Woods are *ſoft*, *faſt*, *hard*, apt to be *cleft*, *tough*, *durable*, &c. Laſtly,

* *Of the ſpecifick Gravity of Timber in Proportion to Water, See the* able *in* Philoſophical Tranſactions, n. 169. *and* 199.

19. Concerning *ſquared*, and *principal Timber*, for any uſual *Buildings*, theſe are the *legal Proportions*, and which *Buildings* ought not to vary from.

Summers or *Girders* from	F.	F.	In *length*, muſt be in their *ſquare*,	In.	In.	*Joyſts* of	Feet
	14	16		11	8		11½ In *length* muſt be in their 10½ *ſquare*
	18 to	20		13 &	9		
	20	23		14	10		
	23	26		16	12		
	26	28		17	14		

Binding Joyſts and *Trimmers* from	F.	F.	In *length* muſt be in their *Square*	6	5	*Wall-plates* and *Beams* of any *length*, from 15 *Foot*, may have in their *Square*	In.	In.
	7 to	11½		7 &	5		7	5
				8	5		10 &	6
							8	6

Purlynes from	F. 15 to 18	F. $18\frac{1}{2}$ $21\frac{1}{2}$	In *length*, must have in their *Square*	9 — 8 & 12----9							
Principal Rafters cut *taper* from	F. $12\frac{1}{2}$ $14\frac{1}{2}$ $18\frac{1}{2}$ to $21\frac{1}{2}$ $21\frac{1}{2}$ $24\frac{1}{2}$	F. $14\frac{1}{2}$ $18\frac{1}{2}$ $21\frac{1}{2}$ $24\frac{1}{2}$ $26\frac{1}{2}$	In *length* must have in their *square* on *one side*	In. 8 9 10 to 12 9	In. 5 7 8 9 9	On the *other side*	6 7 8 8 9	Single *Rafters* in *length* from $6\frac{1}{2}$ to $9\frac{1}{2}$—	F. $6\frac{1}{2}$ 0 $9\frac{1}{2}$	must have in their *squ.*	5-$3\frac{1}{2}$ & 5-4
Principal Dischargers of any *Length* from	Foot 10 upward	must have in their *Square*	Inch. 13 — 16	Inch. 12 — 13							

But *Carpenters* also work by Square, which is ten *Foot* in *framing* and erecting the *Carcase* (as they call it) of any Timber Edifice, which is valued according to the Goodness and Choice of the *Materials*, and Curiosity in *framiug*; especially *Roofs* and *Stair-cases*, which are of most Charges. And *here* might also something be added concerning the Manner of *framing* the *Carcases* of *Buildings*, as of *Floors*, *Pitch* of *Roofs*, the Length of *Hips* and *Sleepers*, together with the *Names* of all those several Timbers used in *Fabricks*, totally consisting of Wood; but I find it done to my Hand, and published some *Yeras* since, at the *End* of a late Translation of the *first Book* of *Palladio*, to which I refer the *Reader*. And to accomplish our *Artist* in Timber, with the utmost which that *Material* is capable of, to the Study and Contemplation of that stupendious *Roof*, which now lies over the renowned *Sheldonean Theatre* at the *University* of *Oxford*; being the sole Work and Contrivement of my most honoured Friend, Sir *Christopher Wren*, now worthily dignified with the *Superintendency* of the *Royal Buildings*. See Dr. *Plot*'s Description of it in his *Nat. Hist.* of *Oxfordshire*, 272, 273. *Tab.* 13, 14. also Dr. *Wallis de Motu*, *Part* iii. *de Vecte*, *cap.* vi. *Prop.* 10.

Other Conversions there are of *Timber* of all Lengths, Sizes and Dimensions, for *Arches*, *Bridges*, *Floors* and *Flat-work* (without the Supports of *Pillars*) *Tables*, *Cabinets*, *Inlayings* and *Carvings*, *Skrews*, *&c.* with the Art of *Turning*, to the Height of which divers *Gentlemen* have arrived, and, for their Diversion, produced Pieces of admirable Invention and Curiosity: These, I say, belonging to the *Mechanick* Uses of Timber, might enter here; with a *Catalogue* of innumerable *Models* and other Rarities (to be found in the *Repositories* and *Collections* of the Curious.) But let this suffice.

20. We did, in *Chap.* xxi. mention certain *Subterranean Trees*, which Mr. *Cambden* supposes grew altogether under the Ground: And truly it did appear a very *Paradox* to me, till I both saw, and diligently examined that Piece (*Plank*, *Stone*, or both shall I name it?) of *Lignum-fossile* taken out of a certain *Quarry* thereof at *Aqua Sparta*, not far from *Rome*, and sent to the most incomparably learned Sir *George Ent*, by that obliging *Virtuoso Cavalier dal Pozzo*. He that shall examine the *Hardness*, and feel the *Ponderousness* of it, sinking

ſinking in *Water*, &c. will eaſily take it for a *Stone*; but he that ſhall behold its *Grain*, ſo exquiſitely *undulated* and varied, together with its *Colour*, Manner of *hewing*, *Chips*, and other moſt perfect Reſemblances, will never ſcruple to pronounce it arrant *Wood*.

Signor Stelluti (an *Italian*) has publiſhed a whole *Treatiſe* expreſly to deſcribe this great *Curioſity*: And there has been brought to our *Notice*, a certain *Relation* of an *Elm* growing in *Barkſhire*, near *Farringdon*, which being *cut* towards the *Root*, was there plainly *petrified*; the like, as I once my ſelf remember to have ſeen in another Tree, which grew quite through a *Rock* near the *Sepulchre* of *Agrippina* (the *Mother* of that Monſter *Nero*) at the *Baia* by *Naples*, which appeared to be all *Stone*, and trickling down in *Drops* of *Water*, if I forget not. But whilſt others have *philoſophized* according to their Manner upon theſe extraordinary *Concretions*, ſee what the moſt induſtrious and knowing Dr. *Hook*, *Curator* of this *Royal Society*, has with no leſs *Reaſon*, but more Succinctneſs, obſerved from a late *Microſcopical* Examen of another Piece of *petrified Wood*; the Deſcription and Ingenuity whereof cannot but gratifie the Curious, who will, by this *Inſtance*, not only be inſtructed how to make *Enquiries* upon the like *Occaſions*, but ſee alſo with what Accurateneſs the *Society* conſtantly proceeds in all their *Indagations* and *Experiments*; and with what *Candor* they relate, and communicate them.

21. It reſembled *Wood*, in that

" Firſt, all the Parts of the *petrified* Subſtance ſeemed not at all diſ-
" located or altered from their natural Poſition whiles they were *Wood*;
" but the whole Piece retained the exact Shape of *Wood*, having many
" of the conſpicuous *Pores* of *Wood* ſtill remaining, and ſhewing a
" manifeſt Difference viſible enough between the *Grain* of the *Wood*
" and that of the *Bark*; eſpecially, when any Side of it was cut
" ſmooth and polite; for then it appeared to have a very lovely
" *Grain*, like that of ſome curious cloſe *Wood*.

" Next (it reſembled *Wood*) in that all the ſmaller, and (if ſo I may
" call thoſe which are only to be ſeen by a good Glaſs) *microſcopi-*
" *pal* Pores of it, appear (both when the Subſtance is cut and poliſhed
" *tranſverſly*, and *parallel* to the Pores) perfectly like the *microſco-*
" *pical* Pores of ſeveral Kinds of *Wood*, retaining both the Shape and
" Poſition of ſuch Pores.

" It was differing from *Wood*,

" Firſt, in *Weight*, being to common *Water*, as $3\frac{1}{4}$ to 1. whereas
" there are few of our *Engliſh Woods* that, when dry, are found to
" be full as heavy as *Water*.

" Secondly, in *Hardneſs*, being very near as hard as *Flint*, and
" in ſome Places of it alſo reſembling the Grain of a *Flint*: It would
" very readily cut *Glaſs*, and would not without Difficulty (eſpecially
" in ſome Parts of it) be ſcratched by a black hard *Flint*: it would al-
" ſo as readily ſtrike *Fire* againſt a *Steel*, as alſo againſt a *Flint*.

" Thirdly, in the *Cloſeneſs* of it; for, though all the *microſcopical*
" *Pores* of the *Wood* were very conſpicuous in one Poſition, yet, by al-
" tering that Poſition of the poliſhed Surface to the Light, it alſo was
" manifeſt that thoſe *Pores* appeared darker than the reſt of the Body,
" only becauſe they were filled up with a more dusky Subſtance, and
" not becauſe they were hollow.

" Fourthly,

Book III.

" Fourthly, in that it would not burn in the *Fire*; nay, though I " kept it a good while red-hot in the Flame of a *Lamp*, very intenſely " caſt on it by a *Blaſt* through a ſmall *Pipe*; yet it ſeemed not at all " to have diminiſhed its Extenſion; but only I found it to have chang- " ed its Colour, and to have put on a more dark and dusky brown *Hue*. " Nor could I perceive that thoſe Parts which ſeemed to have been " *Wood* at firſt, were any thing waſted, but the Parts appeared as ſolid " and cloſe as before. It was farther obſervable alſo, that as it did not " conſume like *Wood*, ſo neither did it crack and fly like a *Flint*, or " ſuch like hard *Stone*; nor was it long before it appeared *red-hot*.

" Fifthly, in its *Diſſolubleneſs*; for putting ſome Drops of *diſtil-* " *led Vinegar* upon the *Stone*, I found it preſently to yield very many " *Bubbles*, juſt like thoſe which may be obſerved in *Spirit* of *Vine-* " *gar* when it corrodes *Coral*; though I gueſs many of thoſe *Bubbles* " proceeded from the ſmall Parcels of *Air*, which were driven out of " the Pores of this *petrified* Subſtance, by the inſinuating liquid *Men-* " *ſtruum*.

" Sixthly, in its *Rigidneſs* and *Friability*; being not at all *flexible*, " but *brittle* like a *Flint*; inſomuch, that with one *Knock* of a *Ham-* " *mer* I *broke* off a ſmall Piece of it, and with the ſame *Hammer* " quickly beat it to pretty fine *Powder* upon an *Anvil*.

" Seventhly, it ſeemed alſo very differing from *Wood* to the *Touch*, " feeling more cold than *Wood* uſually does, and much like other cloſe " *Stones* and *Minerals*.

" The *Reaſon* of all which *Phænomena* ſeems to be,

" That this *petrified Wood* having lain in ſome Place where it was " well ſoaked with *petrifying Water* (that is, ſuch a *Water* as is well " impregnated with *ſtony* and *earthy* Particles) did by Degrees ſeparate, " by *Straining* and *Filtration*, or, perhaps, by *Precipitation*, *Cohesion* " or *Coagulation*, abundance of *ſtony Particles* from that permeating " Water: Which *ſtony Particles* having, by Means of the fluid *Ve-* " *hicle*, convey'd themſelves not only into the *microſcopical Pores*, " and perfectly ſtopp'd up them, but alſo into the *Pores*, which " may perhaps be even in that Part of the *Wood*, which through the " *Microſcope* appears moſt ſolid; do thereby ſo augment the Weight " of the *Wood*, as to make it above three times heavier than *Water*, " and perhaps ſix times as heavy as it was when *Wood:* Next, they " hereby ſo lock up and fetter the Parts of the *Wood*, that the *Fire* " cannot eaſily make them fly away, but the Action of the *Fire* upon " them is only able to *char* thoſe Parts as it were; like as a Piece of " *Wood*, if it be cloſed very faſt up in *Clay*, and kept a good while " *red-hot* in the *Fire*, will, by the Heat of the *Fire*, be *char'd*, and " not conſumed; which may perhaps be the Reaſon why the *petrified* " *Subſtance* appear'd of a blackiſh brown Colour after it had been " burnt. By this Intruſion of the *petrified Particles*, it alſo becomes " *hard* and *friable*; for the ſmaller *Pores* of the *Wood* being perfect- " ly ſtuffed up with theſe *ſtony Particles*, the *Particles* of the *Wood* " have few or no *Pores* in which they can reſide, and, conſequently, " no *Flection* or Yielding can be cauſed in ſuch a *Subſtance*. The re- " maining *Particles* likewiſe of the *Wood* among the *ſtony Particles*, " may keep them from cracking and flying, as they do in a *Flint*.

22. The caſual finding of *ſubterraneous Trees*, has been the occa- ſion of this curious *Digreſſion*, beſides what we have already ſaid in *Chap.*

Chap. iii. *Book* ii. Now it were a ſtrange *Paradox* to affirm, that the *Timber under* the *Ground*, ſhould, to a great Degree, equal the Value of that which grows *above* the *Ground*; ſeeing, though it be far *leſs*, yet it is far *richer*; the *Roots* of the vileſt *Shrub* being better for its *Toughneſs*, and for *Ornament*, and delicate *Uſes*, much more preferable than the *Heart* of the faireſt and ſoundeſt *Tree*: And many *Hills*, and other Waſte-Places, that have in late and former *Ages* been ſtately *Groves* and *Woods*, have yet this *Treaſure* remaining, and perchance ſound and unperiſh'd, and commonly (as we obſerved) an *Hindrance* to other *Plantations*; *Engines* therefore, and *Expedients* for the more eaſily *extracting* theſe *Cumbrances*, and making Riddance upon ſuch Occaſions, beſides thoſe we have produced, would be *excogitated* and enquired after, for the Diſpatch of this *difficult* Work. CHAP. IV.

Thus from all theſe *Inſtances* we may gather the Neceſſity of a more than ordinary Knowledge, requiſite in ſuch whoſe Profeſſion obliges them that deal in *Timber*, to ſtudy the *Art* well; nor is it a ſmall Stock of *Philoſophy*, to skill in the Nature and Property of theſe Materials, and which does not only concern *Architects*, but their *Subſidiary Carpenters*, *Joyners*, eſpecially *Wood-brokers*, *&c.* I cannot therefore but take Notice, that among the antient *Sportula*, bequeathed by ſeveral *Founders* and *Foundreſſes*, to encourage the *Gardeners*, *Dies Violaris*, and *Roſe*, (which was about the Time of the *Floraria*) there was among the *Romans* a *College* or *Hall*, not unlike that of our *Carpenters*; where, upon a certain Day, the *Fraternity* not only met to feaſt, but doubtleſs to confer and edify one another; as appears by an antient *Inſcription* of the *Dendrophori* at *Puteoli*, mention'd by the learned * Dr. *Spon*, which for the Honour of our preſent Diſcourſe we ſubjoin.

* *Diſſer.* xxiii. *& Miſcellan. Antiq. Sect.* ii. *Art.* xi.

EX. S. C. DENDROPHORI. CREATI. OVI. SUNT. SUB. CURA. XV. VIR. ST. CC. V. V. PATRON. L. AMPIUS. STEPHANUS. SAC. M. DEI. Q. Q. DEDICATIONI. HUJUS. PANEM. VINUM. ET. SPORTULAS. DEDIT. HERCULANUS.

C. VALERIUS. PICENT. VI. C. JULIUS. LONGINIUS JUSTINUS.

With all the reſt (a numerous *Catalogue*) of the *Conſuls* Names; it being, it ſeems, a *Corporation* eſtabliſh'd by the State, when they carried Boughs and Branches of Trees in *Proceſſion*, and diſtributed a *Sportula* of Bread and Wine: But of this, and of the *Fabri*, *Tignarij*, *Naupegiarij* (Ship-Carpenters) and *Centonarij*, ſee this learned Man's excellent *Diſſertation*.

The Jews *had their Feaſt of* Ξυλοφορία, *mention'd by* Joſephus, *in which they were oblig'd to carry Wood to the Temple for the maintaining the Fires of the* Altar.

Theſe *Colleges* or *Halls* were dedicated to *Diana*, as *Goddeſs* of the *Woods*; of which another *Roman* Inſcription is yet extant.

DIANAE.
COLLEG. NAUPEGIAR.
M. JUNIUS. BALISTUS.
ET. Q. AVILLIUS. EROS.
II. VIR. D. D.

23. Finally, for the Uſe of our *Chimneys*, and Maintenance of *Fire*, the Plenty of *Wood* for *Fuel*, rather than the *Quality*, is to be looked after; and yet there are ſome greatly to be preferr'd before others, as FUEL.

Book III. *harder*, *longer-laſting*, better *heating*, and chearfully *burning*; for which we have commended the *Aſh*, &c. in the foregoing *Paragraphs*, and to which I pretend not here to add much, for the avoiding Repetitions; though even an *Hiſtory* of the beſt way of *Charring* would not miſsbecome this *Diſcourſe*.

But ſomething more is to be ſaid, ſure, concerning the *Felling* of *Lignum*, Fuel-wood (for ſo *Critics* would diſtinguiſh it from *Materia* Timber:) *Benedictus Curſius*, *Hortor. Lib.* viii. *Cap.* xi. reckons up what *Woods* make the beſt *Firing*: Alſo of *Coaling* & *de facibus*, *Clearing*, and what elſe belongs to ξυλοτομία, eſpecially for the Uſe of * *Sacrifices*; which had their particular Sorts; as in the Temple *Deſpoene* in *Arcadia*, where they were prohibited the burning of *Olive-wood*, or the φυλὸν μανικόν, the *Vaticinatric Laurel*, or the thick-rind *Oak*, nor any *Fungus* or rotten *Wood*, but what was well dry'd, and apt to kindle without ſmoaking. In the *Sacrifice* of *Jupiter* they uſed white *Poplar*, the *Pine*, on the Altar of *Ceres*. The *Perſian Magi* burnt their Sacrifices with *Myrtle*, and the Boughs of *Laurel*; and in general, all the *Pagan Gods*, that *Wood* which was *ſacred* to the particular *Deity*. Of all which to particularize, let the Curious enquire. We proceed therefore with what concerns this moſt uſeful *Chapter*.

* V. *Euſtath. in Odyſſ.* iii.

And firſt, that our *Fueliſt* begin with the *Under-wood*: Some conceive between *Martlemas* and *Holy-Rood*; but generally with *Oak*, as ſoon as 'twill *ſtrip*, but not after *May*; and for *Aſhes*, 'twixt *Michaelmas* and *Candlemas*; and ſo fell'd, as that the *Cattle* may have the *browſing* of it, for in *Winter* they will not only eat the tender *Twigs*, but even the very *Moſs*; but *fell* no more in a Day than they can eat for this Purpoſe. This done, *kid* or *bavin* them, and pitch them upon their Ends, to preſerve them from rotting: Thus the *Under-wood* being diſpoſed of, the reſt will proſper the better; and beſides, it otherwiſe does but rot upon the Earth, and deſtroy that which would ſpring. If you *head* or *top* for the *Fire*, 'tis not amiſs to begin three or four Foot above the *Timber*, if it be conſiderable; but in Caſe they are only *ſhaken-Trees* and *Hedge-rows*, ſtrip them even to *thirty* Foot high, becauſe they are uſually full of *Boughs*; and 'twere good to *top* ſuch as you perceive to wither at the *Tops* a competent Way beneath, to prevent their Sickneſs downwards, which will elſe certainly enſue; whereas by this Means even *dying Trees* may be preſerved many Years to good Emolument, though they never advance taller; and being thus frequently ſhred, they will produce more than if ſuffered to ſtand and decay: This is a profitable *Note* for ſuch as have old, doating, or any ways infirm *Woods*. In other *Fellings*, ſome adviſe never to commence the disbranching from the *Top*; for though the Incumbency of the very *Boughs* upon the *next*, cauſe them to fall off the eaſier, yet it endangers the ſplicing of the next, which is very prejudicial, and therefore adviſe the Beginning at the neareſt. And in *cutting* for *Fuel*, you may as at the *Top*, ſo at the *Sides*, cut a *Foot* or more from the *Body*; but never when you ſhred *Timber-trees*. We have ſaid how dangerous it is to cut for *Fire-wood* when the *Sap* is up, it is a Mark of improvident *Husbands*; beſides, it will never burn well, though abundance be congeſted. Laſtly, remember that *Eaſt* and *North-winds* are unkind to the ſucceeding Shoots.

Now for Directions in *Stacking* (of which we have ſaid ſomething in *Chap.* of *Coppices*) ever ſet the *loweſt* Courſe an *End*, the *ſecond*, that on

on the Sides and Ends, *viz.* Sides and Ends outward; the *third* thwart the other on the Side, and ſo the reſt, till all are placed, ſpending the up-moſt firſt.

Thus we have endeavoured to preſcribe the beſt Directions we could learn concerning this neceſſary Subject. And in this Penury of that dear Commodity, and to incite all ingenious Perſons, ſtudious of the Benefit of their *Country*, to think of Ways how our Woods may be preſerved, by all manner of *Arts* which may prolong the laſting of our *Fuel*, I would give the beſt Encouragements. Thoſe that ſhall ſeriouſly conſider the intolerable Miſery of the poor *Cauchi* (the then Inhabitants of the *Low-Countries*) deſcrib'd by *Pliny*, *Lib.* xvi. *Cap.* i. (how *opulent* ſoever their late *Induſtry* has render'd them) for want only of *Wood* for *Fuel*, will have Reaſon to deplore the exceſſive Decay of our former Store of that uſeful Commodity; and by what Shifts our Neighbours, the *Hollanders*, do yet repair that Defect, be invited to exerciſe their Ingenuity: The Proceſs of which, is caſting the *Die* or Square of the *Turf* in four equal Quarters; and to build them ſo up (as our *Brick-makers* do their *crude* Ware) that they may have the free Intercourſe of the *Air* till they are dry: See *Quicciardius*, in his Deſcription of *Holland*, or *du Cange*'s *Gloſſary*, *verbo Turba*. But beſides the * *Dung* of *Beaſts*, and the *Peat* and *Turf* (which we may find in our *ouzy* Lands and *heathy* Commons) for their *Chimneys*, *Cow-ſheards*, *&c.* they make uſe of *Stoves*, both portable and ſtanding; and truly the more frequent Uſe of thoſe *Inventions* in our great waſting *Cities* (as the Cuſtom is through all *Germany*) as alſo of thoſe new and excellent *Ovens* invented by Dr. *Keffler*, for the incomparably baking of *Bread*, &c. would be an extraordinary Expedient of huſbanding our *Fuel*, as well as the right mingling, and making up of *Char-coal-duſt* and *Loam*, as 'tis hinted to us by Sir *Hugh Plat*, and is generally uſed in *Maeſtricht*, *Liege*, and the Country about it; than which there is not a more ſweet, laſting, and beautiful *Fuel*: The Manner of it is thus:

* *In many Places (where Fuel is ſcarce) poor People ſpread Fern and Straw in the Ways and Paths where Cattle dung and tread, and theu clap it againſt a Wall till it be dry: But that of Hogs is very noiſome.*

24. Take about one *third Part* of the ſmalleſt of any *Coal*, *Pit*, *Sea*, or *Char-coal*, and commix them very well with *Loam* (whereof there is in ſome Places to be found a Sort ſomewhat more combuſtible) make theſe up into *Balls* (moiſtned with a little *Urine* of *Man* or *Beaſt*) as big as an ordinary *Gooſe-egg*, or ſomewhat bigger; or if you will in any other Form, like *Brick-bats*, *&c.* Expoſe theſe in the *Air* till they are thoroughly dry; they will be built into the moſt orderly *Fires* you can imagine, *burn* very clear, give a wonderful Heat, and continue a very long Time. But firſt you muſt make the *Fire* of *Char-coal* or *Small-coal*, covering them with your *Eggs*, *Hotſhots*, or *Hovilles* (as they are called) and building them up in *Pyramids*, or what Shape you pleaſe, they will continue a glowing, ſolemn and conſtant *Fire* for ſeven or eight *Hours*, without being ſtirred, and then they encourage and recruit the innermoſt with a few freſh *Eggs*, and turn the reſt, which are not yet quite reduced to *Cinders*; and this Mixture is deviſed to ſlacken the impetuous devouring of the *Fire*, and to keep the *Coals* from conſuming too faſt.

Two or three ſhort *Billets* cover'd with *Char-coal*, laſt much longer, and with more Life than twice the Quantity by itſelf, whether *Char-coal* alone or *Billet*; and the *Billets* under the *Char-coal* being undiſturb'd, will melt as it were into *Char-coals* of ſuch a laſting Size.

Book III. If *Small-coals* be ſpread over the *Char-coal*, where you burn it alone, 'twill bind it to longer Continuance ; and yet more, if the *Small-coal* be made of the *Roots* of *Thorns*, *Briars* and *Brambles*. Conſult *L. Bacon*, *Exp.* 775.

25. The *Quercus Marina*, *Wreck*, or *Sea-weed*, which comes in our *Oyſter-barrels*, laid under *Newcaſtle-coal* to kindle it (as the Uſe is in ſome Places) will (as I am inform'd) make it out-laſt two great *Fires* of ſimple *Coals*, and maintain a glowing *luculent* Heat without waſte. This Sort of *Fuel* is much made uſe of in *Malta* and the *Iſlands* thereabout, eſpecially to burn in their *Ovens* ; and the *Peaſant* who firſt brought it into Cuſtom, I find highly commended by an *Author*, as a great *Benefactor* to his Country. The Manner of *gathering* it, is to *cut* it in *Summer*-time from the *Rocks*, whereon it grows abundantly, and bringing it in *Boats* or otherwiſe to Land, *ſpread* and *dry* it in the *Sun* like *Hay*, turning and cocking it till it be fully *cured*. It makes an excellent *Fire* alone, and *roaſts* to Admiration ; and when all is *burnt*, the *Aſhes* are one of the beſt *Manures* for *Land* in the World, for the Time it continues in Virtue, which ſhould be frequently ſupplied with freſh ; and as to the *Fire* mingled with other *Combuſtibles*, it is evident that it adds much Life, Continuance and Aid to our ſullen *Sea-coal* Fuel ; and if the Main *Ocean* ſhould afford *Fuel* (as the *Bernacles* and *Soland-Geeſe* are ſaid to do in ſome Parts of *Scotland*, with the very *Sticks* of their *Neſts*) we in theſe *Iſles* may thank ourſelves if we be not warm. Theſe few Particulars I have but mention'd to animate *Improvements*, and ingenious Attempts of detecting more cheap and uſeful *Proceſſes*, for Ways of *Charing Coals*, *Peat*, and the like *fuliginous* Materials ; as the accompliſh'd Mr. *Boyle* has intimated to us in the *Fifth* of thoſe his precious *Eſſays* concerning the *Uſefulneſs* of *Natural Philoſophy*, *Part* ii. *Chap.* vii, *&c.* to which I refer the Curious. In the mean Time, were not *He* worthy a *Statue* of *Gold*, that (*Salvo* to our *Newcaſtle-Trade* and *Seminary* of *Mariners*) ſhould in this *Penury*, and of *Fire-wood*, about ſo monſtrous a Devourer, as this vaſt *City* (poiſon'd with *Smoak* and *Soot*) find out an *Expedient*, that ſhould within the Space of *five* and *twenty* Years, not only free it from all this *helliſh* and pernicious Fog, by furniſhing it with *Fuel* ſufficient to feed and maintain all its *Hearths* and *Fires* with ſweet and wholſome *Billet* ? This, the ingenious Mr. *Nourſe* ſeems to demonſtrate, and I think not impoſſible, whilſt my *Fumifugium* is long ſince vaniſhed *in Aura*. There is no very great Store of *Wood* about *Madrid*, where the *Winters* are ſharp, and ſo very piercing, that there is ſpent no leſs than four *Millions* of *Arrobas* of *Char-coal* (every *Arroba* being three Quarters of our *Buſhel*) and pays to the *King* a *Real per Arroba* before it comes into the Town, or is ſold : It is *char'd* of the *Enzina*, or *Cork-tree* ; beſides which they uſe very little *Fuel-wood*, it being exceeding hard, and conſequently laſting and ſweet. But to return to the *Law*.

26. By the *Preamble* of the *Statute* of 7 *Edw.* VI. one may perceive (the *Meaſures* compared) how plentiful *Fuel* was in the Time of *Edw.* IV. to what it was in the *Reigns* of his *Succeſſors* : This ſuggeſted a Review of *Sizes*, and a Reformation of *Abuſes* ; in which it was *Enacted*, that every *Sack* of *Coals* ſhould contain *four Buſhels* ; every *Taleſhide* to be four *Foot* long, beſides the *Carf* ; and if *named* of *one*, *marked* one, to contain 16 Inches *Circumference*, within a Foot

of

of the Middle; if of two Marks, 23 Inches; of 3, 28; of 4, 35; of 5, 38 Inches *about*; and so proportionably.

27. *Billets* were to be of three Foot and four Inches in Length: The single to be seventeen Inches and an half about; and every *Billet* of one *Cast* (as they term the Mark) to be ten Inches about: Of two *Cast*, fourteen Inches, and to be marked (unless to the private Use of the *Owner*) within six Inches of the Middle: Of one *Cast*, within four Inches of the End, *&c.*

Every bound *Faggot* should be *three* Foot long; the *Band* twenty-four Inches *Circumference*, besides the Knot.

In the 43 *Eliz.* the same *Statute* (which before only concern'd *London* and its *Suburbs*) was made more universal; and that of *Edw.* VI. explained with this Addition: For such *Taleshides* as were of necessity to be made of *Cleft-wood*, if of *one* Mark and half-round, to be 19 Inches about; if quarter-cleft 18 Inches $\frac{1}{2}$: Marked *two*, being round, it shall be 23 Inches Compass; half-round 27; quarter-cleft 26; marked *three*, round 28; half-round 33; quarter-cleft 32; marked *four*, being round 33 Inches about; half-round 39; quarter-cleft 38; marked *five*, round 38 Inches about; half-round 44, quarter-cleft 43; the Measure to be taken within half a Foot of the Middle of the Length mentioned in the former *Statute*.

Then for the *Billet*, every one nam'd a *single*, being round, to have 7 Inches $\frac{1}{2}$ *Circumference*; but no *single* to be made of Cleft-wood: If marked *one*, and round, to contain 11 Inches compass; if half-round 13; quarter-cleft 12 $\frac{1}{2}$.

If marked *two*, being round, to contain 16 Inches; half-round 19; quarter-cleft 18 $\frac{1}{2}$; the Length as in the *Statute* of King *Edw.* VI.

28. *Faggots* to be every Stick of *three Foot* in Length, excepting only one Stick of one Foot long, to harden and wedge the Binding of it: This, to prevent the Abuse (too much practised) of filling the middle Part and Ends with Trash and short Sticks, which had been omitted in the former *Statute*: Concerning *this* and of the *Dimensions* of *Wood* in the *Stack*, see *Coppices*, *Chap.* i. *Book* iii. to direct the less instructed *Purchaser*: And I have been the more particular upon this Occasion, because, than our *Fuel* bought in *Billet* by the *Notch* (as they call it in *London*) there is nothing more deceitful; for by the vile Iniquity of some *Wretches* marking the *Billets* as they come to the *Wharf*, Gentlemen are egregiously cheated. I could produce an Instance of a *Friend* of mine (and a *Member* of this *Society*) for which the *Wood-monger* has little Cause to brag; since he never durst come at him, or challenge his *Money* for the *Commodity* he brought; because he durst not stand to the *Measure*.

At *Hall*, near *Foy*, there is a *Faggot* which consists but of *one* Piece of *Wood*, naturally grown in that Form, with a *Band* wrapped about it, and parted at the Ends into *four Sticks*, one of which is subdivided into *two* others: It was carefully preserved many Years by an *Earl* of *Devonshire*, and looked on as portending the *Fate* of his *Posterity*, which is since indeed come into the Hands of *four Cornish* Gentlemen, one of whose *Estates* is likewise divided 'twixt two *Heirs*. This we have out of *Cambden*; and I here *note*, for the *Extravagancy* of the Thing, though as to the Verity of such *Portents* from *Trees*, *&c.* I do not find (upon Enquiry, which I have diligently made of my Lord *Brereton*) that there is any Certainty of the rising of those *Logs*

Book III in the *Lake* belonging to that Place, ſo as ſtill to premoniſh the *Death* of the *Heir* of that *Family*, how confidently ſoever reported; though ſometimes it has happened, but the *Event* is not conſtant. To this *Claſs* may be referred what is affirmed concerning the fatal *Prediction* of *Oaks* bearing ſtrange *Leaves*, which may be enquired of: And of Accidents *faſciating* the Boughs and Branches of *Trees*, Dr. *Plot* takes Notice of in *Willows* and other ſoft Woods, eſpecially in an *Aſh* at *Biſſeter*, uniformly wreath'd two or three Times round: Such a Curioſity alſo hangs up in the *Portic* of the *Phyſick-Garden* at *Oxford*, in a Top-branch of *Holly*, which ſhews it likewiſe happening ſometimes even to harder Woods; and 'tis probable that ſuch as we ſometimes find ſo *helically* twiſted, have received ſome *Blaſt*, that has contracted the *Fibres*, and curled them in that extravant Manner. Wonderful *Contorſion* and *Perplexity* of the Parts of *Trees*, may be ſeen and admir'd in *Tea-roots*, eſpecially in that given to the *Royal Society* by the Right Honourable the Lord *Somer* (the late moſt learned *Preſident*) amongſt the *Natural Rarities* of the *Repoſitary*.

29. But I will now deſcribe to you the *Myſtery* of *Charing* (whereof ſomething was but touch'd in the *Proceſs* of extracting *Tar* out of the *Pines*) as I receiv'd it from a moſt induſtrious *Perſon*, and ſo conclude the *Chapter*.

There is made of *Char-coal* uſually *three* Sorts, *viz. one* for the *Iron-works*, a *ſecond* for *Gun-powder*, and a *third* for *London* and the *Court*, beſides *Small-coals*, of which we ſhall alſo ſpeak in its due Place.

We will begin with that Sort which is uſed for the *Iron-works*, becauſe the reſt are made much after the ſame Manner, and with very little Difference.

The beſt *Wood* for this is good *Oak*, cut into Lengths of *three* Foot, as they ſize it for the *Stack*: This is better than the *Cord-wood*, though of a large Meaſure, and much uſed in *Eſſex*.

The *Wood* cut, and ſet in *Stacks* ready for the *Coaling*, chuſe out ſome level Place in the *Coppice*, the moſt free from Stubs, *&c.* to make the *Hearth* on: In the midſt of this *Area* drive down a Stake for your *Centre*, and with a *Pole*, having a *Ring* faſten'd to one of the Extreams (or elſe with a *Cord* put over the *Centre*) deſcribe a *Circumference* from twenty or *more* Feet *ſemidiameter*, according to the Quantity of your *Wood* deſign'd for *coaling*, which being near, may conveniently be *char'd* on that *Hearth*; and which at one Time may be 12, 16, 20, 24, even to 30 *Stack*: If 12 therefore be the Quantity you will *coal*, a *Circle*, whoſe *Diameter* is 24 Foot, will ſuffice for the *Hearth*; if 20 *Stack*, a *Diameter* of 32 Foot; if 30, 40 Foot, and ſo proportionably.

Having thus marked out the Ground with *Mattocks*, *Haws*, and fit Inſtruments, *bare* it of the *Turf*, and of all other combuſtible Stuff whatſoever, which you are to rake up towards the *Periphery*, or Outſide of the *Circumference*, for an *Uſe* to be afterwards made of it; plaining and levelling the Ground within the *Circle*: This done, the *Wood* is to be brought from the neareſt Part where it is *ſtack'd* in Wheelbarrows; and firſt the ſmalleſt of it placed at the utmoſt Limit, or very Margin of the *Hearth*, where it is to be ſet long-ways, as it lay in the *Stack*; the biggeſt of the Wood pitch or ſet up on End round about againſt the ſmall *Wood*, and all this within the *Circle*, till you come within

within five or six *Foot* of the *Centre*; at which Distance you shall begin to set the *Wood* in a *triangular* Form (as in the following *Print*, *a*) till it come to be three *Foot* high: Against *this* again, place your greater *Wood* almost *perpendicular*, reducing it from the *triangular* to a *circular* Form, till, being come within a Yard of the *Centre*, you may pile the *Wood* long-ways, as it lay in the *Stack*, being careful that the Ends of the *Wood* do not touch the *Pole*, which must now be erected in the *Centre*, nine *Foot* in *height*, that so there may remain a round *Hole*, which is to be formed in working up the *Stack-wood*, for a *Tunnel*, and the more commodious *Firing* of the *Pit*, as they call it, though not very properly. This provided for, go on to pile, and set your *Wood* upright to the other, as before; till having gained a *Yard* more, you lay it long-ways again, as was shew'd: And thus continue the *Work*, still interchanging the *Position* of the *Wood*, till the whole *Area* of the *Hearth* and *Circle* be filled and piled up at the least eight *Foot* high, and so drawn *in* by Degrees in *piling*, that it resemble the Form of a *copped* brown *Houshold-loaf*, filling all Inequalities with the smaller *Trunchions*, till it lie very close, and be perfectly and evenly shaped. This done, take *Straw*, *Haume*, or *Fern*, and lay it on the out-side of the Bottom of the *Heap*, or *Wood*, to keep the next *Cover* from falling amongst the *Sticks*: Upon *this* put on the *Turf*, and cast on the *Dust* and *Rubbish* which was grubbed and raked up at the making of the *Hearth*, and reserved near the *Circle* of it; with *this* cover the whole Heap of *Wood* to the very Top of the *Pit* or *Tunnel*, to a reasonable and competent Thickness, beaten close and even, that so the *Fire* may not vent but in the Places where you intend it; and if in preparing the *Hearth*, at first, there did not rise sufficient *Turf* and *Rubbish* for this Work, supply it from some convenient Place near to your *Heap*. There be who cover this again with a *sandy*, or finer Mould, which if it close well, need not be above an *Inch* or two thick: This done, provide a *Screen*, by making light *Hurdles* with *slit Rods* and *Straw* of a competent Thickness, to keep *off* the *Wind*, and broad and high enough to defend an opposite Side to the very Top of your *Pit*, being eight or nine *Foot*; and so as to be easily removed, as need shall require, for the *Luing* of your *Pit*.

When now all is in this Posture, and the *Wood* well ranged, and closed, as has been directed, set *Fire* to your *Heap*: But first you must provide you of a *Ladder* to ascend the Top of your *Pit*: This they usually make of a curved *Tiller*, fit to apply to the *convex* Shape of the *Heap*, and cut it full of Notches, for the more commodious setting their Feet, whiles they govern the *Fire* above; therefore now they pull up, and take away the *Stake* which was erected at the *Centre*, to guide the building of the *Pile* and Cavity of the *Tunnel*: This done, put in a Quantity of *Char-coals* (about a *Peck*) and let them fall to the Bottom of the *Hearth*; upon them cast in *Coals* that are fully kindled; and when those which were first put in are beginning to sink, throw in more *Fuel*; and so, from Time to Time, till the *Coals* have universally taken *Fire up* to the Top; then cut an ample and reasonable thick *Turf*, and clap it over the Hole, or *Mouth* of the *Tunnel*, stopping it as close as may be with some of the former Dust and Rubbish: Lastly, with the Handles of your *Rakers*, or the like, you must make *Vent-holes*, or *Registers* (as our *Chymists* would name them) through the Stuff which covers your *Heap* to the very *Wood*, these in Rangers

of two or three *Foot* Diſtance, quite round within a *Foot* (or thereabout) of the *Top*, though ſome begin them at the *Bottom*: A Day after begin another Row of *Holes* a *Foot* and *half* beneath the former, and ſo more, till they arrive to the Ground, as Occaſion requires. *Note*, that as the *Pit* does *coal* and *ſink* towards the *Centre*, it is continually to be fed with ſhort and fitting *Wood*, that no Part remain unfired; and if it *chars* faſter at one Part than at another, *there* cloſe up the *Vent-holes*, and open them where need is: A *Pit* will in this manner be burning off and *charing*, five or ſix Days, and as it *coals*, the *Smoak* from thick and groſs Clouds, will grow more blue and livid, and the whole Maſs ſink acccordingly; ſo as by theſe Indications you may the better know how to ſtop and govern your *Spiracles*. Two or three Days it will only require for *cooling*, which (the *Vents* being ſtopped) they aſſiſt, by taking now off the outward Covering with a *Rabil* or *Rubber*; but *this*, not far above the Space of one *Yard* Breadth at a Time; and firſt they remove the coarſeſt and groſſeſt of it, throwing the finer over the *Heap* again, that ſo it may neither *cool* too haſtily, nor endanger the *burning* and reducing all to *Aſhes*, ſhould the whole *Pit* be uncovered and expoſed to the *Air* at once; therefore they open it thus round by Degrees.

When now by all the former *Symptoms* you judge it fully *char'd*, you may begin to *draw*; that is, to take out the *Coals*, firſt round the Bottom, by which Means the *Coals*, *Rubbiſh* and *Duſt* ſinking and falling in together, may choak and extinguiſh the *Fire*.

Your *Coals* ſufficiently *cooled*, with a very long-toothed *Rake*, and a *Vann*, you may load them into the *Coal-wains*, which are made cloſe with *Boards*, purpoſely to carry them to *Market*: Of theſe *Coals* the groſſer Sort are commonly reſerved for the *Forges* and *Iron-works*; the middling and ſmoother put up in *Sacks*, and carried by the *Colliers* to *London*, and the adjacent *Towns*; thoſe which are char'd of the *Roots*, if *picked* out, are accounted beſt for *chymical Fires*, and where a laſting and extraordinary *Blaſt* is required.

30. *Coal* for the *Powder-Mills* is made of *Alder-wood* (but *Lime-tree* were much better, had we it in that Plenty as we eaſily might) *cut*, *ſtack'd* and *ſet* on the *Hearth* like the former: But firſt ought the *Wood* to be wholly *disbarked* (which *Work* is to be done about *Midſummer* before) and being thoroughly dry, it may be *coaled* in the ſame Method, the *Heap* or *Pile* only ſomewhat ſmaller, by reaſon that they ſeldom *coal* above five or ſix *Stacks* at a Time, laying it but two *Lengths* of the *Wood* one above the other, in Form ſomewhat flatter on the Top than what we have deſcribed. Likewiſe do they fling all their *Rubbiſh* and *Duſt* on the Top, and begin not to cover at the *Bottom*, as in the former Example. In like ſort, when they have drawn up the *Fire* in the *Tunnel*, and ſtopped it, they begin to draw down their *Duſt* by Degrees round the Heap; and this *proportionably* as it *fires*, till they come about to the *Bottom*; all which is diſpatched in the ſpace of two Days. One of theſe Heaps will *char* threeſcore *Sacks* of *Coal*, which may all be carried at one Time in a *Waggon*; and ſome make the *Court-coals* after the ſame manner. Laſtly,

31. *Small-coals* are made of the *Spray* and *Bruſh-wood*, which is ſhripped off from the *Branches* of *Copſe-wood*, and which is ſometimes bound up into *Bavins* for this Uſe; though alſo it be as frequently *char'd* without binding, and then they call it *cooming* it together: This, they place in ſome near *Floor*, made level, and freed of Incumbrances, where

where ſetting one of the *Bavins*, or part of the *Spray*, on Fire, two Men ſtand ready to throw on *Bavin* upon *Bavin* (as faſt as they can take *Fire*, which makes a very great and ſudden Blaze) till they have burnt all that lies near the Place, to the Number (it may be) of five or ſix hundred *Bavins*: But e'er they begin to ſet *Fire*, they fill great *Tubs* or *Veſſels* with *Water*, which ſtand ready by them, and this they daſh on with a great *Diſh* or *Scoup*, ſo ſoon as ever they have thrown on all their *Bavins*, continually plying the great Heap of glowing *Coals*, which gives a ſudden Stop to the Fury of the *Fire*, whiles with a great *Rake* they lay and ſpread it abroad, and ply their caſting of *Water* ſtill on the *Coals*, which are now perpetually turned by two Men with great Shovels, a third throwing on the *Water*: This they continue till no more Fire appears, though they ceaſe not from being very hot: After this, they ſhovel them up into great Heaps, and when they are thoroughly cold, put them up in Sacks for *London*, where they uſe them amongſt divers *Artificers*, both to kindle greater Fires, and to temper and *aneal* their ſeveral *Works*: Laſtly, this is to be obſerved, that the *Wood* which yields the fineſt *Coal*, is more flexible and gentle than that which yields the contrary. CHAP. IV.

32. The beſt *Seaſon* for the fetching home of other *Fuel*, is in *June*, the *Ways* being then moſt dry and paſſable; yet I know ſome good *Husbands* will begin rather in *May*; becauſe *fallowing*, and ſtirring of Ground for *Corn*, comes in the enſuing *Months*, and the Days are long enough, and *Swains* have then leaſt to do.

b *The* Central Pole *or Place of the* Tunnel, *with the* Area *making ready.*
a *The* Wood *placed about it in Triangle.*
c *The* Coal-wood *piled up before it be covered with Earth.*
d *The* Coal-pit, *or* Pile fired.

33. And thus we have ſeen how for *Houſe-boot*, and *Ship-boot*, *Plow-boot*, *Hey-boot* and *Fire-boot*, the *Planting* and *Propagation* of *Timber* and *Foreſt-trees* is requiſite; ſo as it was not for nothing, that the very *Name* (which the *Greek* generally applied to *Timber*) ὕλη, by *Senecdoche*, was taken always *pro materia*; ſince we hardly find any

Book III. Thing in *Nature* more univerſally *uſeful*; or, in Compariſon with it, deſerving the Name of *Material*; it being, in Truth, as the *Mother Parent* and (*metaphorically*) the *Paſſive Principle* ready for the *Form*.

See for this Dr. Grew of the Vegetation of Trunks, Chap. vii.

34. Laſtly, to *compleat* this *Chapter* of the *univerſal Uſe* of *Trees*, and the Parts of them, ſomething I could be tempted to ſay concerning *Staves*, *Wands*, &c. their *Antiquity*, *Uſe*, *Divine*, *Domeſtick*, *Civil* and *Political*; the Time of *cutting*, manner of *ſeaſoning*, *forming*, and other curious Particulars (how *dry* ſoever the *Subject* may appear) both of *Delight* and *Profit*; but we reſerve it for ſome more fit Opportunity, and perhaps it may merit a peculiar *Treatiſe*, as acceptable as it will prove divertiſant. Inſtead of this, we will therefore gratifie our *Reader* with ſome no inconſiderable *Secrets*: And firſt we will begin with a few plain *Directions* for ſuch Perſons and *Country Gentlemen*, as (being far diſtant from, or unhandſomely impoſed upon by common *Painters*) may be deſirous to know how to *ſtop*, *prime* and *paint* their *Timber-work* at Home, and ſave the Expence of *Work*, by any of their Servants endued with an ordinary Capacity.

Putty to ſtop the *Chaps* and *Cracks* of wrought *Timber*, is made of *White* and *Red-lead*, and ſome *Spaniſh-white* (not much) tempered and bruiſed with ſo much *Linſeed-Oil* as will bring it to the Conſiſtence of a *Paſte*. Then,

Your firſt *Priming* ſhall be of *Oaker* and *Spaniſh-white*, very thinly ground: The *ſecond* with the ſame, a little *whiter*; but it matters not much. The *third* and *laſt*, with *White-lead* alone; ſome mingle a little *Spaniſh-white* with it, but it is better omitted. If you deſire it exquiſite, inſtead of *Linſeed-Oil*, uſe that of *Wall-nuts*: But the ordinary *Stone-colour* for groſs *Work*, expoſed to the Air, may be of leſs Expence, with the more ordinary *Oil*, to which you may add a little *Char-coal* in the Grinding: But if (not much minding a ſmall Charge) you deſire it more fair and durable, lay your *Work* three Times with *White-lead* (which is indeed much better than *Spaniſh-white*) the firſt and ſecond *Primer* very thin, yet ſo as not to *run*: Theſe may be with *Linſeed-Oil*; but the laſt with *Nut-oil*, and ſome *Oil* of *Turpentine* tempered together, which preſerves it from *tarniſhing*, and loſing *Colour* (I ſpeak here of *Work* within-doors): The ordinary Priming with *Red*, being a *Cheat* among *Painters*; ſeeing *White* upon *White* muſt needs render the Colour ſtill *whiter* and fairer.

If it be for *Out-work*, and expoſed to the *Air*, you may ſpare the *Turpentine*, whilſt *Nut-oil*, through all the three *Grindings*, were moſt deſirable.

To *vein* and *wave* on *White*, temper a little *Lamp-black* and *White* exceedingly thin with *Nut-oil* and *Turpentine*, and then dipping a gentle flexible *Feather*, *vein* and *undulate* your Work with a light Hand, as naturally as you can, to expreſs the *Veins* of *Marble*, &c. either on *Black* or any other; but the *Grain* of *Timber*, with a Slight of the *Penſil*. *Verniſh* is often uſed, where they paint in *Size*: For other, *Oil-colours*.

Blue is made of *Indigo*, with a ſmall Addition of *Red-lead*, or *Verdigrieſe*, for a *Drier*; unleſs you will uſe *Drying-oil*, which is much preferrable, and is made of *Linſeed-oil* boiled with a little *Umber* bruiſed ſmall: I ſpeak nothing here of *Smalt* and *Byce*, which is only done by *ſtrewing*.

Green,

Green, with *Verdigrieſe* ground, with *Linſeed-oil*, pretty thick, and then tempered with *Joyner's Verniſh* in a glazed *Pot* of Earth (the beſt to preſerve your *Colours* in) till it run ſomewhat thin; and juſt touch it with your *Bruſh*, when you *lay* it on, having *primed* it the *ſecond* Time with *White*.

There is alſo a fair *Graſs-green* for *Traillage*, priming firſt with *Yellow*, then with *Vert de Montagne*, or *Lapis Armeniacus*.

Note, That every *Primer* muſt be dry, before you go it over again.

If you will *Re-vaile*, as they term it, and ſhadow, or vein your *Stone-colour*, there is a *Colour* called *Shadowing-black*; or you may now and then lightly touch it with a little *Red-lead*; or work with *Umber*.

It will alſo behove you to have a good ſmooth *Slat*, and a *Pebble Mullar* well poliſhed, which may be bought at *London*; as likewiſe a Dozen of large and leſſer *Bruſhes*, and *glazed Pots*; and to grind the *Colours* perfectly well. The *Spaniſh-white* requires little Labour; the *Shadowing-black*, none at all.

When you have finiſhed, waſh your *Bruſhes* with warm Water and a little Soap: Preſerve your *Oil* in *Bladders*; and what Colour you leave, plunge the *Pots* into *fair Water*, ſo as they may ſtand a little covered in it, which will keep them from growing *dry*, till you have occaſion for them. That you may not be altogether ignorant of the *Charge* and *Price* of the *Ingredients*, which ſeldom varies:

Clear and ſweet *Linſeed-oil* is uſually had for 4 *s. per Gallon.*
Spruce-oaker, of all Sorts, to prime with, 3 *s. per Pound.*
Spaniſh-white, for half a *Penny*: *White-lead* 3 *d. per Pound.*
Verdigrieſe, clean and bright, 3 *s. per Pound.*
Black to *ſhadow* with, exceeding cheap.
Joiners Verniſh, 6 *d. per Pound.*

So as for farther Direction; of *White-lead* ſix Pounds, *Spaniſh-white* ſix Pounds, *Spruce-oaker* three Pounds, *Verdigrieſe* half a Pound, *Verniſh* one Pound, *Shadowing-black* half a Pound, *&c.* will ſerve one for a pretty deal of *Work*, and eaſily inform what *Quantities* you ſhould provide for a greater or leſſer Occaſion.

We will next impart a *Receipt* for a cheap *Black-dye*, ſuch yet as no *Weather* will fetch out, and that may be of *uſe* both *within* and *without* Doors, upon *Wainſcot*, or any fine *Timber*, as I once applied it to a *Coach* with perfect Succeſs.

Take of *Galls*, groſly contuſed in a Stone-mortar, one Pound, boil them in *three Quarts* of *White-wine Vinegar* to the Diminution of *one* Part, two remaining: With *this* rub the *Wood* twice over; then take of the Silk-dyers *Black*, liquid (cheap and eaſie to be had) a convenient Quantity, mix it at Diſcretion with *Lamp-black* and *Aqua-vitæ*, ſufficient to make it thin enough to paſs a Strainer: With *this* dye over your *Work* again, and if at any Time it be ſtained or ſpotted with Dirt, *&c.* rubbing it only with a *Woollen-cloth* dipped in Oil, it will not only recover, but preſent you with a very fair and noble *Poliſh*. There is a *Black* which *Joyners* uſe to tinge their *Pear-tree* with, and make it reſemble *Ebony*, and likewiſe *Fir*, and other *Woods* for *Cabinets*, *Picture-frames*, *&c.* which is this;

Take

Take *Log-wood q. s.* boil it in ordinary *Lie*, and with this paint them over: when 'tis *dry*, work it over a ſecond Time with *Lamp-black* and ſtrong *Size:* That alſo *dry*, rub off the duſty Sootineſs adhering to it, with a ſoft *Bruſh* or *Cloth*; then melt ſome *Bees-wax*, mixing it with your *Lamp-black* and *Size*; and when this is cold, make it up into a Ball, and rub over your former *Black:* Laſtly, with a *Poliſhing-bruſh* (made of ſhort ſtiff Boar's Briſtles, and faſtned with *Wire*) labour it till the *Luſtre* be to your liking. But

The black *Putty*, wherewith they ſtop and fill up *Cracks* and *Fiſſures* in *Ebony*, and other fine *Wood*, is compoſed of a Part of the pureſt *Roſin*, *Bees-wax* and *Lamp-black:* This they heat and drop into the *Crannies*; then with an *hot Iron* glaze it over, and being cold, ſcrape it even with a ſharp *Chizel*, and after all, poliſh it with a Bruſh of *Bents*, a Woollen-cloth, Felt, and an Hog's-hair Rubber: Alſo *Maſtick* alone, mingled with a proper *Colour*, is of no leſs Effect.

35. We conclude all with that incomparable Secret of the *Japan* of *China-verniſhes*, which has hitherto been reſerved ſo choicely among the *Virtuoſi*; with which I ſhall ſuppoſe to have abundantly gratified the moſt curious Employers of the finer *Woods*.

Take a *Pint* of Spirit of Wine exquiſitely *dephlegmed*, four *Ounces* of *Gum-lacq*, which thus cleanſe: Break it firſt from the Sticks and Rubbiſh, and roughly contuſing it in a Mortar, put it to ſteep in Fountain-water, tied up in a Bag of coarſe Linnen, together with a very ſmall Morſel of the beſt *Caſtile-ſoap*, for twelve Hours; then rub out all the *Tincture* from it, to which add a little *Alum*, and reſerve it apart: The *Gum-lacq* remaining in the Bag, with one Ounce of *Sandrac* (ſome add as much *Maſtick* and *White-amber*) diſſolve in a large *Matras* (well ſtopped) with the Spirit of Wine, by a two Days *Digeſtion*, frequently agitating it, that it adhere not to the Glaſs: Then ſtrain and preſs it forth into a leſſer Veſſel: Some after the firſt *Infuſion* upon the *Aſhes*, after twenty-four Hours, augment the Heat, and transfer the *Matras* to the *Sand-bath*, till the Liquor begins to ſimper; and when the upper Part of the *Matras* grows a little *hot*, and that the *Gum-lacq* is melted, which by that Time (if the *Operation* be heeded) commonly it is, ſtrain it through a Linnen-cloth, and preſs it betwixt two Sticks into the Glaſs, to be kept for *Uſe*, which it will eternally be, if well ſtopped.

The Application.

The *Wood* which you would *verniſh*, ſhould be very clean, ſmooth, and without the leaſt Freckle or Flaw; and in Caſe there be any, ſtop them with a *Paſte* made of *Gum Tragacanth*, incorporated with what *Colour* you deſign: Then cover it with a *Layer* of *Verniſh* purely, till it be ſufficiently drenched with it: Then take *ſeven* Times the Quantity of the *Verniſh*, as you do of *Colour*, and bruiſe it in a ſmall earthen Diſh glazed, with a Piece of hard *Wood*, till they are well mingled: Apply *this* with a very fine and full *Pencil*; a Quarter of an Hour after do it over again, even to three times ſucceſſively; and if every time it be permitted to *dry*, before you put on the next, 'twill prove the better: Within two Hours after theſe four *Layers* (or ſooner if you pleaſe) *poliſh* it with *Preſle* (which our *Cabinet-makers* call, as I think, *Dutch-reeds*) wet or dry; nor much imports it, though, in doing this, you ſhould chance to diſcover any of the *Wood*; ſince you are to

paſs

paſs it over four or five times, as above; and if it be not yet ſmooth enough, *preſs* it again with the *Reeds*, but now very tenderly: Then rub it ſufficiently with *Tripoly*, and a little *Oil-olive* or *Water*: Laſtly, cover it once or twice again with your *Verniſh*, and two Days after, poliſh it as before with *Tripoly* and a Piece of *Hatter's Felt*.

The COLOURS.

To make it of a fair *Red*, take *Spaniſh-vermilion*, with a quarter Part of *Venice-lack*.

For *Black*, *Ivory* calcined (as *Chymiſts* ſpeak) betwixt two well luted *Crucibles*; which being ground in *Water*, with the beſt and greeneſt *Copperas*, and ſo let *dry*, reſerve.

For *Blue*, take *Ultra-marine*, and only twice as much *Verniſh* as of *Colour*. The reſt are to be applied like the *Red*, except it be the *Green*, which is hard to make fair and vivid, and therefore ſeldom uſed.

Note, The right *Japan* is done with three or four *Layers* of *Verniſh* with the *Colours*; then *two* of pure *Verniſh uncoloured* (which is made by the former *Proceſs*, without the *Sandrac*, which is only mingled and uſed for *Reds*) which muſt be done with a ſwift and even Stroak, that it may not *dry* before the *Aventurin* be ſifted on it; and then you are to cover it with ſo many *Layers* of pure *Verniſh*, as will render it like poliſhed *Glaſs*. Laſt of all, furbiſh it with *Tripoly*, *Oil*, and the *Felt*, as before directed. *Note*,

By *Venturine* is meant the moſt delicate and ſlender *Golden-wire*, ſuch as *Embroiderers* uſe, reduced to a kind of *Powder*, as ſmall as you can file or clip it: *This* ſtrewed upon the firſt *Layer* of pure *Verniſh*, when *dry*, ſuperinduces what *Colour* you pleaſe; and this is prettily imitated with ſeveral *Talkes*.

This being the *firſt* Time that ſo rare a *Secret* has been imparted (and which ſince the firſt Publication of it, has been ſo ſucceſsfully improved amongſt our *Cabinet-makers* here in *London*) the *Reader* will believe that I envy him nothing which may be of *Uſe* to the *Publick*: And though many *Years* ſince we were *Maſters* of this *Curioſity*, *Athanaſius Kircher* has ſet down a *Proceſs* in his late *China Illuſtrata* pretty faithfully; yet, beſides, that it only ſpeaks *Latin* (ſuch as 'tis) it is nothing ſo perfect as ours: Howbeit, there we learn, that the moſt opulent *Province* of *Chekiang* is for nothing more celebrated, than the excellent *Paper* which it produces, and the *Gum* called *Ciè* (extilling from certain Trees) with which they compoſe their famous *Verniſh*, ſo univerſally valued over the *World*, becauſe it is found above all other *Inventions* of that Nature, to preſerve and beautifie *Wood* above any Thing which has hitherto been detected: And it has accordingly ſo generally obtained with them, that they have whole *Rooms* and ample *Chambers* wainſcoted therewith, and divers of their moſt precious *Furniture*; as *Cabinets*, *Tables*, *Stools*, *Beds*, *Diſhes*, *Skreens*, *Staves*, *Frames*, *Pots*, and other *Utenſils*: But long it was e'er we could, for all this, approach it in *Europe* to any Purpoſe, till *F. Euſtachius Imart*, an *Auguſtine Monk*, obtained the *Secret*, and obliged us with it.

And now, after all, this *Verniſh* is ſaid to be improved by a later *Receipt* ſent from the *China Miſſionaries* to the Great Duke of *Tuſcany*, and communicated by Dr. *Sherards*, and deſcribed in the *Philoſophical*

Book III. *Tranſactions*, Number 262, to which I refer the Curious both for the *Materials*, *Colours*, *Compoſition* and *Working*.

I know not whether it may be any Service to ſpeak here of *coloured Woods*, I mean ſuch as are naturally ſo, becauſe beſides the *Berbery* for *Yellow*, *Holly* for *White*, and *Plum-tree* with *Quick-lime* and *Urine*, for *Red*, we have very few: Our *Inlayers* uſe *Fuſtic*, *Locuſt*, or *Acacia*; *Braſil*, *Prince* and *Roſe-wood* for *Yellow* and *Reds*, with ſeveral others brought from both the *Indies*; but when they would imitate the natural turning of *Leaves* in their curious *Compartments* and *Bordures* of *Flower-works*, they effect it by dipping the Pieces (firſt cut into ſhape, and ready to *inlay*) ſo far into *hot Sand*, as they would have the Shadow; and the *Heat* of the Sand darkens it ſo gradually, without Detriment or Burning the thin *Chip*, as one would conceive it to be natural.

Note, That the Sand is to be heated in ſome very thin Braſs Pan, like to the Bottom of a Scale or Balance: This I mention, becauſe the burning with *Irons*, or *Aqua-fortis*, is not comparable to it.

I learn alſo, that *ſoft Wood* attains little Politure without infinite Labour, and the Expedient is, to plane it often, and every Time you do ſo, to ſmear it with ſtrong *Glew*, which eaſily penetrating, hardens it; and the frequenter you do this, and ſtill plane it, the harder and ſleeker it will remain.

And now we have ſpoken of *Glew*, 'tis ſo common and cheap, that I need not tell you it is made by boiling the Sinews, *&c.* of *Sheeps-trotters*, Parings of *Raw-hides*, *&c.* to a *Jelly*, and ſtraining it: But the finer and more delicate *Work* is beſt faſtned with *Fiſh-glew*, to be had of the *Druggiſt* by the Name of *Ichthyocolla*; you may find how the beſt is made of the Skin of *Sturgeon*, in the *Philoſ. Tranſ.* Vol. XI. Numb. 129.

36. And here I conclude, ſumming up all the good *Qualities*, and tranſcendant *Perfections* of *Trees*, in the harmonious *Poet*'s Conſort of *Elogies*.

[a]— Pines *are for* Maſts *an uſeful* Wood,
Cedar *and* Cypreſs, *to build Houſes good:*
Hence Covers for their Carts, and Spokes for Wheels
Swains make, and Ships *do form their crooked* Keels:
With Twigs the Sallows, Elms *with Leaves are freight*;
Myrtles *ſtout Spears, and* Cornel *good for Fight:*
The Yews *into* Ityrean *Bows are bent*;
Smooth Limes, *and* Box, *the Turner's Inſtrument*
Shaves into Form, and hollow Cups does trim;
And down the rapid Po *light* Alders *ſwim*;

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[a] ——————dant utile lignum
Navigiis Pinos, domibus Cedroſque Cupreſſoſque;
Hinc radios trivere rotis, hinc tympana plauſtris
Agricolæ, & Pandas ratibus poſuere carinas.
Viminibus Salices, fœcundæ frondibus Ulmi:
At Myrtus validis haſtilibus, & bona bello
Cornus: Ityræos Taxi torquentur in arcus.
Nec Tiliæ læves, aut torno raſile Buxum,
Non formam accipiunt ferroque cavantur acuto:
Nec non & torrentem undam levis innatat Alnus
Miſſa Pado, nec non & apes examina condunt
Corticibuſque cavis, vitioſæque Ilicis alvo.
Georg. ii.

In hollow Bark Bees *do their Honey ſtive,*
And make the Trunk of an old Oak *their Hive.*

And the moſt ingenious *Ovid*, where he introduces the miraculous *Groves* raiſed by the melodious *Song* of *Orpheus.*

[b] ——— *nor Trees of* Chaony,
The Poplar, *various* Oaks *that pierce the* Sky,
Soft Linden, *ſmooth-rind* Beech, *unmarried* Bays,
The brittle Haſel, Aſh, *whoſe Spears we praiſe,*
Unknotty Fir, *the ſolace ſhading* Planes,
Rough Cheſnuts, Maple fleck'd *with different Grains,*
Stream-bordering Willow, Lotus *loving Lakes,*
Tough Box, *whom never ſappy Spring forſakes,*
The ſlender Tamarisk, *with Trees that bear*
A purple Fig, *nor* Myrtles *abſent were.*
The wanton Ivy *wreath'd in amorous Twines,*
Vines *bearing* Grapes, *and* Elms *ſupporting* Vines,
Streight Service-Trees, *Trees dropping* Pitch, *Fruit-red,*
Arbutus, *theſe the reſt accompanied.*
With limber Palms, *of Victory the Prize;*
And upright Pine, *whoſe Leaves like Briſtles riſe,*
Priz'd by the Mother of the Gods ———

SANDYS.

as the incomparable *Poet* goes on, and is imitated by our Divine *Spencer*, where he brings his gentle *Knight* into a ſhady *Grove*, praiſing

——— the *Trees* ſo ſtreight, and high,
The ſailing *Pine*, the *Cedar* proud, and tall,
The *Vine*-prop *Elm*, the *Poplar* never dry,
The Builder *Oak*, ſole *King* of *Foreſts* all;
The *Aſpine*, good for Staves; the *Cypreſs* Funeral;
The *Laurel*, Meed of mighty Conquerors
And *Poets* ſage; The *Fir* that weepeth ſtill;
The *Willow*, worn of forlorn Paramours;
The *Yew*, obedient to the Bender's Will;
The *Birch* for Shafts; the *Sallow* for the Mill;
The *Myrrh* ſweet bleeding in the bitter Wound;
The War-like *Beech*; the *Aſh* for nothing ill;
The fruitful *Olive*; and the *Plantane* round;
The Carver *Holm*; the *Maple*, ſeldom inward ſound.

Canto I.

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[b] ——— non Chaonis abfuit arbor,
Non nemus Heliadum, non frondibus Æſculus altis,
Nec Tiliæ molles nec Fagus, & innuba Laurus,
Et Coryli fragiles, & Fraxinus utilis haſtis;
Enodiſque Abies, curvataque glandibus Ilex,
Et Platanus genialis, Acerque coloribus impar,
Amnicolæque ſimul Salices, & aquatica Lotos,
Perpetuóque virens Buxus, tenueſque Myricæ,
Et bicolor Myrtus, & baccis cærula Ficus.
Vos quoque flexi-pedes Hederæ veniſtis, & una
Pampineæ Vites, & amictæ Vitibus Ulmi,
Orníque, & Piceæ, Pomoque onerata rubenti
Arbutus, & lentæ victoris præmia Palmæ,
Et ſuccincta comas, hirſutaque vertice Pinus
Grata Deum matri, *&c.* *Met.* x.

And

And in this *Symphony* might the noble *Taſſo* bear likewiſe his Part; but that theſe are ſufficient, *& tria ſunt omnia.*

37. For we have already ſpoken of that modern *Art* of *tapping Trees* in the Spring, by which doubtleſs ſome excellent and *ſpecific Medicines* may be attained, as (before) from the *Birch* for the *Stone*; from *Elms* and *Elder* againſt *Fevers*; ſo from the *Vine*, the *Oak*, and even the very *Bramble*, *&c.* beſides the wholſome and pleaſant *Drinks*, *Spirits*, *&c.* that may poſſibly be educed out of them all, which we leave to the *Induſtrious*, ſatisfying ourſelves, that we have been among the *firſt* who have *hinted* and *publiſhed* the *Ways* of *performing* it.

What now remains, concerns only ſome general *Precepts*, and *Directions* applicable to moſt of that we have formerly touched; together with a *Brief* of what farther *Laws* have been enacted for the *Improvement* and *Preſervation* of *Woods*; and which having diſpatched, we ſhall with a ſhort *Paræneſis*, touching the preſent ordering and diſpoſing of the *Royal Plantations* for the future Benefit of the *Nation*, put an End to this *ruſtick* Diſcourſe.

CHAP. V.

Aphoriſms, *or certain General* Precepts, *of Uſe to the foregoing* Chapters.

1. TRY all Sorts of *Seeds*, and by their *thriving* you ſhall beſt diſcern what are the moſt proper *Kinds* for Grounds,

Quippe ſolo natura ſubeſt——

and of theſe deſign the main of your *Plantation*. Try all Soils, and fit the *Species* to their Natures: *Beech*, *Haſel*, *Holly*, *&c.* affect Gravel and Gritty; and if mixed with Loam, *Oak*, *Aſh*, *Elm*, *&c.* In ſtiff Ground the *Aſh*, *Horn-beam*, *&c.* and in light feeding Ground or Loam, any Sort whatſoever: In the lower and wetter Lands, the *Aquatics*, *&c.*

2. Keep your newly ſown Seeds continually *freſh*, and in the *Shade* (as much as may be) till they peep.

3. All *curious* Seeds and Plants are diligently to be weeded, till they are ſtrong enough to over-drop or ſuppreſs them: And you ſhall carefully *haw*, *half-dig*, and ſtir up the Earth about their *Roots* during the firſt *three Years*; eſpecially in the *Vernal* and *Autumnal Equinoxes*: This Work to be done in a moiſt Seaſon for the *firſt Year*, to prevent the *Duſt*, and the ſuffocating of the tender *Buds*; but afterwards, in the dry Weather.

4. *Plants* raiſed from Seed, ſhall be *thinned* where they come up too *thick*; and none ſo fit as you thus draw, to be *tranſplanted* into *Hedge-rows*, eſpecially where Ground is precious.

Suffragines, *Nepotes* and *Traduces* come in here, for general Direction; I begin with

5. *Succers*, that ſprout from the fartheſt Part of the Stem, or *Body* of the *Mother-Tree*, are beſt, as eaſier plucked up without Detriment to the *Roots* and *Fibres*, or Violence to the *Mother*: It were good therefore firſt to *uncover* the *Roots* whence they ſpring, and to cut them cloſe

cloſe off, replanting them immediately: Thoſe which grow at more Diſtance, may be ſeparated, with ſome of the old *Root*, if you find the *Succer* not well furniſhed. CHAP. V.

To produce *Succers*, lay the *Roots* bare, and ſlit ſome of them here and there diſcreetly, and then cover them.

6. *Layers* are to be bent down and couched in rich Mould, and if you find them ſtubborn, you may ſlit a little in the *Bark* and *Wood*, but no deeper than to make it *ply*, without wounding the tender Heart. Putting forth *Root* is aſſiſted by *pricking* the *Bark*, *ſlitting* or binding a Pack-thread about the Part you would have them ſpring from.

The proper Seaſon is, from the *early Spring*, or *Mid-Auguſt*, *&c.* and in all dry Seaſons to keep them diligently watered.

7. *Slips* and *Cuttings* (by which moſt *Trees* may be propagated) taken in moiſt Ground, from *Auguſt* to the End of *April* frequently moiſtned, ſhould be ſeparated at the *Burs*, *Joints*, or *Knobs*, two or three Inches beneath them: Strip them of their Leaves before you bury them, leaving no ſide Branches, or little Top. Some ſlit the End where it is cut off; at two Years end is the ſooneſt they will be fit to take up; *Layers* much ſooner.

8. In *tranſplanting*, omit not the placing of your *Trees* towards their accuſtomed *Aſpect*: And if you have Leiſure, make the *Holes* the *Autumn* before, the wider the better: Three Foot over and two deep, is little enough if the Ground be any thing ſtiff; often ſtirring and turning the *Mould*, and mixing it with *better* as you may find Cauſe: This done, *dig* or *plough* about them, and that as near their Stems as you can come, without hurting them, and therefore rather uſe the Spade for the firſt two or three *Years*; and preſerve what you plant *ſteady* from the *Winds* and Annoyance of *Cattle*, *&c.*

9. Remove the *ſofteſt* Wood to the *moiſteſt* Grounds, as in *Numb.* 1.

Diviſæ Arboribus patriæ——

Georg. ii.

10. Begin to tranſplant *Foreſt-trees* when the *Leaves* fall after *Michaelmas*; you may adventure when they are *tarniſhed* and grow yellow: It is loſt Time to commence later, and for the moſt Part of your *Trees*, early *Tranſplanters* ſeldom repent; for ſometimes a tedious Bind of *Froſt* prevents the whole Seaſon, and the *Baldneſs* of the *Tree* is a Note of Deceit; for ſome *Oaks*, *Horn-beam*, and moſt *Beeches*, preſerve their *dead Leaves* till *new* ones puſh them off.

11. *Set* deeper in the *lighter Grounds* than in the *ſtrong*; but ſhalloweſt in *Clay*: Five Inches is ſufficient for the *drieſt*, and one or two for the *moiſt*, provided you eſtabliſh them againſt *Winds*.

12. *Plant* forth in *warm* and *moiſt* Seaſons; the *Air* tranquil and ſerene; the *Wind* weſterly, but never whiles it actually *freezes*, *rains*, or in *miſty* Weather; for it moulds and infects the *Roots*.

13. What you gather and draw out of *Woods*, plant immediately, for their *Roots* are very apt to be mortified, or hardened and withered by the *Winds* and cold *Air*.

14. *Trees* produced from *Seeds*, muſt have the *Top-roots* abated (the *Walnut-tree*, and ſome others excepted, and yet if planted merely for the *Fruit*, ſome affirm it may be adventured on with Succeſs) and the bruiſed Parts cut away; but ſparing the *fibrous*, for they are the

Book III. principal *Feeders* ; and thoſe who cleanſe them too much, are puniſhed for the Miſtake.

15. In *Spring*, rub off ſome of the *collateral* Buds, to check the Exuberancy of *Sap* in the *Branches*, till the *Roots* be well eſtabliſhed.

16. *Tranſplant* no more than you well *fence* ; for *that* neglected, *Tree-culture* comes to nothing : Therefore all young-ſet *Trees* ſhould be defended from the *Winds* and *Sun* ; eſpecially the *Eaſt* and *North*, till their *Roots* are fixed ; that is, till you perceive them *ſhoot* ; and the not exactly obſerving of this *Article*, is Cauſe of the periſhing of the moſt tender *Plantations* ; for it is the Invaſion of theſe two *Aſſailants* which does more Miſchief to our new-ſet, and leſs hardy *Trees*, than the moſt ſevere and durable *Froſts* of a whole *Winter* : And here let me add this *Caution* again ; that in planting of Trees of Stature, for *Avenues* or *Shades*, *&c.* you ſet them at ſuch Diſtance, as that they be not in Reach of the *Manſion-houſe*, in Caſe of being blown down by the *Winds*, for Reaſons ſufficiently obvious : See *Hiſtory* of the *Storm*, 26 *Nov.* 1703.

17. The propereſt *Soil*, and moſt *natural*, apply to diſtinct *Species*, *Nec vero terræ ferre omnes omnia poſſunt*. Yet we find by Experience, that moſt of our *Foreſt-trees* grow well enough in the *courſeſt* Lands, provided there be a competent Depth of *Mould* : For albeit moſt of our *wild Plants* covet to run juſt under the *Surface* ; yet where there is not ſufficient Depth to *cool* them, and entertain the *Moiſture* and *Influences*, they are neither laſting nor proſperous.

18. *Wood* well planted, will grow in *mooriſh*, *boggy*, *heathy*, and the *ſtonieſt* Grounds : Only the *white* and *blue Clay* (which is commonly the *beſt Paſture*) is the *worſt* for *Wood*, and ſuch good *Timber* as we find in any of theſe (*Oaks* excepted) is of an exceſſive *Age*, requiring thrice the Time to arrive at their Stature.

19. If the *Seaſon* require it, all new *Plantations* are to be plied with *Waterings*, which is better poured into a *Circle* at ſome Diſtance from the *Roots*, which ſhould continually be *bared* of *Graſs*, and if the *Water* be *rich* or *impregnated*, the *Shoots* will ſoon diſcover it ; for the *Liquor* being *percolated* through a Quantity of *Earth*, will carry the *nitrous* Virtue of the *Soil* with it ; by no Means therefore *water* at the *Stem* ; becauſe it waſhes the *Mould* from the *Root*, comes *too* crude, and endangers their *rotting* : But,

20. For the cooling and refreſhing *Tree-roots*, the congeſting of rotten *Litter* ſprinkled over with fine Earth is good, or place *Potſheards*, *Flints*, or *Pibbles* near the Foot of the *Stem*, for ſo the *Poet*.

> [a] *Lime-ſtones, or ſqualid Shells, that may the Rain,*
> *Vapours, and gliding Moiſture entertain.*

But remember you remove them after a competent Time, elſe the *Vermine Snails* and *Inſects* which they produce and ſhelter, will gnaw, and greatly injure their *Bark* ; and therefore to lay a *Coat* of moiſt rotten *Litter* with a little *Earth* upon it, will preſerve it moiſt in *Summer*, and warm in *Winter*, enriching the *Showers* and *Dews* that ſtrain through it.

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[a] Aut lapidem bibulum, aut ſquallenteis infode conchas,
Inter enim labentur aquæ, tenuiſque ſubibit
Halitus——— *Georg.* ii.

21. Young *Plants* will be ſtrangled with *Corn*, *Oats*, *Peaſe* or *Hemp*, or any rankly growing *Grain*, if a competent *Circle* and Diſtance be not left (as of near a *Yard*, or ſo) of the *Stem*: This is a *uſeful* Remark; but whether the ſetting, or ſowing of *Beans* near *Trees*, make them thrive the more (as *Theophraſtus* writes, I ſuppoſe he means *Fruit-trees*) I leave to Experience. *Pythagoras* we know prohibited the *eating* of them to *Women*.

22. *Cut* no *Trees* (eſpecially having an eminent *Pith* in them, being *young* and *tender* too) when either *Heat* or *Cold* are in Extreams; nor in very *wet* and *ſnowy* Weather; and in this Work it is profitable to diſcharge all *Trees* of unthriving, broken, Wind-ſhaken *Browſe*, and ſuch as our *Law* terms *Cablicia*, and to take them off to the Quick.

——— *ne pars ſincera trahatur.*

And for *Ever-greens*, eſpecially ſuch as are tender, *prune* them not after Planting, till they do *radicate*, that is, by ſome little freſh *Shoot*, diſcover that they have taken Root.

23. Cut not off the Top of the *leading Twig* or *Shoot* (unleſs very *crooked*, and then at the next *erect Bud*) when you *tranſplant Timber-trees*, but thoſe of the *Collateral* you may ſhorten, ſtripping up the reſt cloſe to the *Stem*; and ſuch as you do ſpare, let them not be the moſt *oppoſite*, but rather one above another, to preſerve the Part from ſwelling, and hindring its taper Growth: Be careful alſo to keep your Trees from being over *Top-heavy*, by ſhortning the Side Branches competently near the *Stem*: Young Plants nipt either by the *Froſt* or Teeth of *Cattle*, do commonly break on the Sides, which impedes both Growth and Spiring. In this Caſe, *prune* off ſome, and quicken the *leading Shoot* with your *Knife*, at ſome Diſtance beneath its Infirmity: But if it be in a very unlikely Condition at *Spring*, cut off *all* cloſe to the very Ground, and hope for a new *Shoot*; continually ſuppreſſing whatever elſe may accompany it, by cutting them away in *Summer*.

24. *Walnut*, *Aſh*, and *Pithy-trees* are ſafer *pruned* in *Summer* and warm Weather, than in the *Spring*, whatever the Vulgar fancy: And ſo,

I will conclude with the *Tecnical* Names, or *diſſimilar* Parts of *Trees*, as I find them enumerated by the induſtrious and learned Dr. *Merett*. *Scapus*, *Truncus*, *Cortex*, *Liber*, *Malicorium*, *Matrix*, *Medulla* & *Cor*, *Pecten*, *Circuli*, *Surculi*, *Rami*, *Sarmenta*, *Ramuſculi*, *Spadix*, *Vimen*, *Virgultum* & *Cremium*, *Vitilia*, *Talea*, *Scobs*, *Termes*, *Turiones*, *Frondes*, *Cachryas* & *Nucamentum*, *Julus* & *Catulus*, *Comæ*: The Species *Frutex*, *Suffrutex*, &c. to which add, *Alburnum*, *Capitulum*, *Cima*, *Echinus*, *Geniculum*, *Locuſtæ*, *Pericarptum*, *Petiolus*, *Sugilta*, &c. All which I leave to be put into good and proper *Engliſh* (as our learned *Phytologiſt* Mr. *Ray* has done) by thoſe who ſhall once oblige our *Nation* with a full and abſolutely compleat *Dictionary*, as yet a *Deſiderate* amongſt us, however of late infinitely improved.

To this I ſhall add, the *Time* and *Seaſon* of the *flouriſhing* of *Trees*, computing from the Entry of each *Month* as the *Figures* denote; that is, from *March* (where the *Doctor* begins) incluſively, March, *Acer*. 3. (i.) from *March* to *May*, viz. *one* Month; & *ſic de cæteris*) *Populus* 2. *Quercus* 5. *Sorbus* 2. *Ulmus* 2. April, *Alnus* 2. *Betula* 2. *Caſtanea* 4. *Euonymus* 2. *Fagus* 2. *Fraxinus* 2. *Nux-juglans* 3. *Salix* 2. *Sambucus* 2. May, *Cornus* 2. *Geniſta* 4. *Juniperus*, *Morus* 2. *Tilia* 4 June, *Aquifolium* 2. July, *Arbutus* 2. Feb. *Buxus* 2, &c.

Many

Book III. Many more useful *Observations* are to be collected and added to these, from the diligent Experience of *Planters*.

CHAP. VI.

Of the Laws *and* Statutes *for the* Preservation *and* Improvement *of* Woods *and* Forests.

'TIS not to be passed by, that the very first *Law* we find which was ever *promulged*, was concerning *Trees*; and that *Laws* themselves were first * *written* upon them, or *Tables* composed of them; and after that Establishment in *Paradise*, the *next* we meet withal are as antient as *Moses:* You may find the *Statute* at large in *Deut.* xx. 19, 20. Which though they chiefly tended to *Fruit-trees*, even in an *Enemy*'s Country, yet you will find a Case of *Necessity* only alledged for the *Permission* to destroy any other.

* *The* Laws *of* Numa *first cut in* Quernis Tabulis, *before they were* engraven *in* Brass: *See* Dionysius Halicarnass, *Lib.* iii.

2. To sum up briefly the *Laws* and Civil *Constitutions* of great *Antiquity*, by which *Cervius* informs us 'twas no less than Capital, *alienas arbores incidere*; the *Lex Aquilia*, and those of the xii. *Tab.* mentioned by *Paulus*, *Cujas*, *Julianus*, and others of that *Robe*, repeated divers more.

It was by those sacred *Constitutions* provided, that none might so much as plant *Trees* on the Confines of his *Neighbour*'s *Ground*, but he was to leave a *Space* of at the least *five Foot*, for the smallest *Tree*, that they might not injure him with their Shadow. *Si Arbor in Vicini agrum impenderit, eam sublucato, &c.* and if for all this, any hung over farther, 'twas to be *stripped* up *fifteen Foot:* And this Law *Balduinus*, *Olderdorpius* and *Hotoman* recite out of *Ulpian*, *Lib.* i. *F. de Arb. Cædend.* where we have the *Prætor*'s *Interdict* expressed, and the impendent *Wood* adjudged to appertain to him whose *Field* or *Fence* was thereby damnified: Nay, the wise *Solon* prescribed *Ordinances* for the very *Distances* of *Trees*; as the divine *Plato* did against stealing of *Fruit*, and violating of *Plantations:* And the Interdiction *de Glande legenda* runs thus in *Ulpian*, *AIT PRÆTOR, GLANDEM, QUÆ EX ILLIUS AGRO IN TUUM CADIT, QUO MINUS ILLI TERTIO QUOQUE DIE LEGERE AUFERRE LICEAT, VIM FIERI VETO.* And yet, though by the *Prætor*'s Permission he might come every *third* Day to gather it up without *Trespass*, his *Neighbour* was to share of the *Mast* which so fell into his *Ground*; and this *Chapter* is well supplied by *Pliny*, *Lib.* xvi. *Cap.* v. and *Cujas* upon the *Place*, interprets *Glandem* to signify not the *Acorns* of the *Oak* alone, but all sorts of *Fruit* whatsoever, *Lib.* cxxxvi. *F. de Verb. Signif.* L. *Unis* ff. *de Glande leg.* as by Usage of the *Greeks*, amongst whom ακρόδρυα imports all kind of *Trees*.

There were also *Laws* concerning *Boundaries*, to be found at large in other learned *Authors*, *De Re Agraria*, of which we give this short *Extract:* Some admitting any *sort* of Trees, others of *peculiar* Kinds, for the *fencing* of their *Grounds*; others with *foreign Trees*, that the Difference of the *Wood* might serve as a *Mark:* Some by Agreement planted them in *common* upon the very *Borders*; some at

their private Charge, a little within the *Margents* of their own *Fields*, *&c.* Amongſt the different Sorts of *Trees*, we find *Pines* and *Cypreſs-trees* placed for *Bounds*, in others, *Aſh*, *Elm*, or *Poplar*; which being near the *Limits*, with any cultivated Ground between, the intermediate Spaces were filled with *Shrubs*. In caſe the Trees were in *common*, ſome preſerved them untouch'd on both Sides; others, the *Stems* only, *Lop*, *Tops*, and *Branches* (eſpecially if they belonged to a *particular* Perſon) to cut or ſpare at their Pleaſure, provided they planted others in their room. In Trees *marked*, it muſt be conſidered whether they are in *common*, which ought to be marked in the *Middle*, or on each *Side*; and if one Side of the Tree have *Leaves*, the other ſhould be *cut*, to ſignify their belonging to thoſe Perſons, on the Border of whoſe Grounds they are left entire: To this for *Trees* eight Foot aſunder: Thoſe at twenty Foot Diſtance were marked with X, or Γ, to notify a *Flexure* or Turning there-about: Some permit them to ſtand till they arrive to ſuch a Bulk and Stature, as to over-top the reſt, diſtinguiſhed alſo from thoſe marked on *both Sides*, whether they ſtand in *Woods*, *barren* or *uncultivated Land*, as being ſuppoſed in *common*: The ſame *Rule* holds if marked in the *Middle*. If but one Side be *marked*, the *unmarked* Side is the *Boundary*: If the *Mark* be different on either Side (and none elſe to be ſeen) ſuch Trees are not to be accounted *Boundaries*. If, as ſometimes, *Briars* and ſuch Shrubs grow on the antient *Limits*, it muſt be conſidered of what *Kind* they are, and ſhould be enquired how it happens that they are often found in the Middle of the *Fields*. Laſtly, in *champaign* and open Places, *foreign Trees* were uſually planted. There are more of thoſe nice *Rules* to be found among the *Lawyers*, whilſt before any of theſe Inſtances, the *Images* of *Satyrs* bounded the *Confines*, and were counted as *Termini*, which none might remove, without being accounted as Sacrilegious, and the Perſon puniſhed with *Death*. Theſe, and the *Hermæ*, were reputed *Protectors* of ſuch *Boundaries*.

——————— *& te pater*
Silvane, tutor finium. HOR.

In the mean Time, no Trees whatſoever might be planted near *publick Aquaducts*, leſt the *Roots* ſhould inſinuate into, and diſplace the *Stones*: Nor on the very Margent of navigable *Rivers*, leſt the *Boats* and other *Veſſels*, paſſing too and fro, ſhould be hinder'd; and therefore ſuch Impediments were called *Retæ*, *quia Naves retinent*, ſays the *Gloſs*; and becauſe the falling of the *Leaves* corrupted the *Water*. So nor within ſuch a Diſtance of *High-ways* (which alſo our own *Laws* prohibit) that they might *dry* the better, and leſs cumber the *Traveller*. *Trees* that obſtructed the *Foundation* of *Houſes* were to be felled; *Barthol.* Lib. i. *Doct.* c. *de Interdict. Ulp.* in *L. priore* ff. *de Arborum cædend.* *Trees* ſpreading their *Roots* in Neighbour-ground, to be in *common*; ſee *Cujas* and *Paulus* in *L. Arb.* ff. *de Communi dividend.* where more of the *Alienation* of *Trees* fell'd, and not ſtanding but with the *Funds*, as alſo of the *Uſu-fruit* of *Trees*, and the Difference 'twixt *Arbores Grandes*, and *Cremiales* or *Ceduæ*, of all which *Ulpian*, *Baldus*, *Alciat*, with the *Laws* to govern the *Conlucatores* and *Sublucatores*, and *Pruners*; *vid. Pan. ſ. c. Sent. Lib.* v. *Feſtus*, *&c.* for we paſs over what concerns *Vines* and *Olive-trees*, to be found in *Cato de R. R. &c.* Nor is it here that we deſign to en-

BOOK III. large, as those who have *philologiz'd* on this Occasion *de Sycophantis*, and other curious *Criticisms*; but to pass now on, and confine myself to the prudent *Sanctions* of our own *Parliaments*: For though, according to the old and best Spirit of true *English*, we ought to be more powerfully led by *Royal* Example, than to have need of more cogent and violent *Laws*; yet, that our *Discourse* may be as ample, and as little defective as we can render it, something 'tis fit should be spoken concerning such *Laws* and *Ordinances* as have been from Time to Time constituted amongst us for the Encouragement and Direction of such as do *well*, and for the *Animadversion* and Punishment of those who continue *refractory*.

But before we descend to our *Municiple*, and present *Laws* and *Constitutions*, let us enquire what was antiently meant by a *Forest* (waving those, I think, impertinent *Etymologies*, *quia foris est*, *Lumbard Gloss*, &c.) A *Forest* is properly an *Harbour* for *wild Beasts*: *Quasi ferarum statio*; for which, mighty Tracts and Portions of Land have been *afforded* (as the Term is) by the *Kings* and *Monarchs* of this *Nation*, beyond any other in *Europe*, and guarded with such strict, rigorous, and severe *Laws*, as did not extend to the Prohibition of Killing and Destruction of *Deer* and *Venison* alone, but even to that of killing little silly *Birds*; and that not only to the Forfeiture and Loss of *Goods*, but of *Limb* and *Life*. Such, among others, was that of *Richard* I. upon incurring the Loss of the Offender's *Eyes* and *Testicles*, *&c.* to the unsufferable Hindrance of great *Improvements*; whilst there might have been not only enough for *Royal Diversion*, but for the Increase of *Timber* and *People*, which are the true *Glory* and *Safety* of this *Nation*. In the mean Time, 'tis remarkable that *William Rufus* (Successor to the great *Conqueror*) chasing a *Stag* under a spreading *Oak*, was, by the Glance of an *Arrow*, levell'd at the *Beast*, deprived of his Life. The *Historian* recounts it as *God*'s visiting the *Sin* of the *Father* upon the *Children*, for his demolishing so many *Churches* and *Villages*, and turning them into Receptacles and Dens of *wild Beasts*; there having, besides this *Prince*, been *two* more who met with their *Death* in *New-Forest*. There were in *Yorkshire* alone, in the Time of *Henry* VIII. *two hundred*, *seventy* and *five Woods* (besides the *Parks* and *Chases*) most of them containing *five hundred Acres*: See Mr. *Cambden*'s *Brit.* As to what we call *Wood-land*, I know not how to distinguish *Forest* from *Woods*, unless for its being applicable to all Sorts in *common*; for heretofore (which as *Strabo* tells us) the antient *Inhabitants* of this *Island*'s Security, was their *Woods*, instead of *Cities* and *Towns*, as still they are among the People of the *uncultivated America*: Nor doubtless was our superb and stately *Metropolis* (the antient *Trinovant*) any other; from whence some derive its *Name*, turning *Den* only into *Don*; whilst, since our own *Remembrance*, the whole *City* was ('till the late dreadful *Conflagration*) a *wooden City*, almost entirely built of *Wood* and *Timber*.

Wood-land in *Warwickshire* (says the same learned *Antiquary*) was antiently called *Ardena*, importing the same in *British*, and still retaining the same, in what is left of that vast *Forest*, the *Ardenner-Wald* in the *Nether Germany*, which stretching thro' the *Culedonium* of *Luxemburg* to the Confines of *Champagne*, for more than an *hundred Miles* in Length, was no more than such as might compass a *Wood-land*; from whence our own *Danica Silva* (the *Forest* of *Deane*) might

might probably derive its Name contracted, and *Diana Nemorenſis* found under the *Britiſh Arduena* and *Arden:* But diſmiſſing theſe Conjectures, we now come to the Subject of this *Chapter*, as it more immediately concerns our *Common Law* (and ſome of other *Nations*) which we ſhall deduce in this *Order*. CHAP. VI.

3. From the Time of *Edward* IV. were enacted many excellent *Laws* for the *planting*, *ſecuring*, *cutting*, and *ordering* of *Woods*, *Coppices* and *Under-woods*, as then they took Cognizance of them; together with the ſeveral *Penalties* upon the *Infringers*; eſpecially from the 25 of *Hen.* VIII. 17, *&c.* confirmed by the 13 and 27 of Q. *Eliz. Cap.* xxv, xix, *&c.* which are diligently to be conſulted, revived, put in Execution, and enlarged where any Defect is apparent; as in particular the *Act* of exempting of *Timber* of twenty-two Years Growth from *Tyth*, for a longer Period, to render it complete, and more effectual to their *Improvement:* And that *Law* repealed, by which *Willows*, *Sallows*, *Oziers*, *&c.* which they term *Sub-bois*, are reputed but as *Weeds*.

4. Severer *Puniſhments* have lately been ordained againſt our *Wood-ſtealers*, Deſtroyers of young *Trees*, *&c.* By an antient *Law* of ſome *Nation*, I read, he forfeited his *Hand*, who *beheaded* a *Tree* without Permiſſion of the *Owner*; and I cannot ſay they are ſharp ones, when I compare the Severity of our *Laws* againſt *Mare-ſtealers*; nor am I by Inclination the leaſt *cruel*; but I do affirm, we might as well live without *Mares*, as without *Maſts* and *Ships*, which are our *wooden* but no leſs profitable *Horſes*.

5. And here we cannot but perſtringe thoſe *riotous* Aſſemblies of *idle People*, who, under Pretence of *going a Maying* (as they term it) do oftentimes *cut down* and *carry away* fine ſtreight *Trees*, to ſet up before ſome *Ale-houſe*, or *Revelling-place*, where they keep their drunken *Bacchanalia:* For though this *Cuſtom* was, I read, introduced by the Emperor *Anaſtaſius*, to aboliſh the *Gentile Majana* of the *Romans* at *Oſtia*; which was to transfer a great *Oaken-tree* out of ſome *Foreſt* into the *Town*, and erect it before their *Miſtreſſes* Door; yet I think it were better to be quite aboliſhed amongſt us, for many Reaſons, beſides that of occaſioning ſo much *Waſte* and *Spoil* as we find is done to *Trees* at that *Seaſon*, under this wanton Pretence, by *breaking*, *mangling*, and *tearing* down of *Branches*, and intire *Arms* of *Trees*, to adorn their wooden *Idol*. The *Imperial Law* againſt ſuch *Diſorders* we have in L. ob. id. ff. *ad legem Aquill.* & in ff. L. xliii. *Tit.* vii. *Arborum furtim cæſarum:* See alſo *Triphon.* L. ig. *de Bon. off. cont. tab. vel in ligna focaria*, L. *Ligni.* ff. *de Lege* 3, *&c.*

To theſe I might add the *Laws* of our King *Ina*; or as the learned *Lambard* reckons them in his Αρχαιονομία *de priſcis Anglorum legibus*, whoſe *Title* is, Be þuþu bapnete, of burning Trees: The *Sanction* runs thus.

If any one ſet Fire of a fell'd Wood, *he ſhall be puniſhed, and beſides pay* three Pounds; *and for thoſe who clandeſtinely cut* Wood (*of which the very Sound of the* Ax *ſhall be ſufficient* Conviction) *for every* Tree *he ſhall be mulcted* thirty Shillings. *A Tree* ſo *fell'd, under whoſe Shadow* thirty Hogs *can ſtand, ſhall be mulcted at* three Pounds, *&c.*

Severe Laws againſt Wood-ſtealers, *v.* Greeneway, *de* L. L. abrog. *in* Holland *ad* Tit. Arbor. furt, Cæſar. *Lib.* ii. *and ſeveral*

One cruelly whipt for it. See alſo Carpzovius in Prax. Crim. *Par.* ii. *Queſt.* 83. *Num.* 2. Segg. *others to that Purpoſe.*

6. I have heard, that in the great *Expedition* of 88, it was expreſly enjoin'd the *Spaniſh* Commanders of that ſignal *Armada*, that if, when *landed*, they ſhould not be able to ſubdue our *Nation*, and make good their *Conqueſt*, they ſhould yet be ſure not to leave a *Tree* ſtanding in the *Foreſt* of *Deane*. It was like the *Policy* of the *Philiſtines*, when the poor *Iſraelites* went down to their Enemies *Smiths* to ſharpen every Man his *Tools*; for, as they ſaid, *leſt the Hebrews make them Swords or Spears*; ſo theſe, *leſt the* Engliſh *build them Ships*, and *Men of War*. Whether this were ſo, or not, certain it is, we cannot be too *jealous* for the Preſervation of our *Woods*; and eſpecially of thoſe eminent, and with *Care*, inexhauſtible *Magazines*. In the Duke of *Luxemburg*'s Country, no *Farmer* is permitted to fell a *Timber-tree* without making it appear he hath planted *another*. And we have already mentioned that inviolable *Cuſtom* about *Frankfort*, where the young *Farmer* muſt produce a *Certificate* of his having ſet a Number of *Walnut-trees*, before he have leave to *marry*. But of theſe, and the like, *V. Follar* in *Conſtit. Rey. de Offic. Tract.* 11, 92, 93, *&c.* I dare not ſuggeſt the Encouragement of a yet farther Reſtraint, that even *Proprietors* themſelves ſhould not preſume to make Havock of ſome of their own *Woods*, to feed their *Prodigality*, and heap *Fuel* to their *Vices*; but it is worthy of our Obſervation, that (in that inimitable *Oration*, the ſecond *Philippic*) *Cicero* does not ſo ſharply reproach his great *Antagoniſt* for any other of his *Extravagancies* (which yet he there enumerates) as for his waſteful Diſpoſure of certain *Wood-lands* belonging to the *Common-wealth*, amongſt his jovial *Bravo's*, and lewd Companions; *tua iſta detrimenta ſunt* (meaning his *Debauchees*) *illa noſtra*; ſpeaking of the *Timber*. And doubtleſs, the ſpoil and waſting of this neceſſary *Material* is no leſs than a publick Calamity: This *John* Duke of *Lancaſter* knew well enough, when, to revenge the Depradations made upon the *Engliſh* Borders, 'tis ſaid, he ſet *four* and *twenty thouſand Axes* at Work at once, to deſtroy the Woods in *Scotland*.

7. But to the *Laws*: It were to be wiſhed that our tender and improvable *Woods*, ſhould not admit of *Cattle* by any Means, till they were quite grown out of reach; the *Statutes* which connive at it, in favour of *Cuſtom*, and for the ſatisfying of a few clamorous and rude *Commoners*, being too indulgent; ſince it is very evident, that leſs than a fourteen or fifteen Years *Encloſure*, is in moſt Places too ſoon; and our moſt *material* Trees would be of *infinite* more Worth and Improvement, were the *Standards* ſuffered to grow to *Timber*, and not ſo frequently cut, at the next *felling* of the *Wood*, as the general Cuſtom is. In 22 *Edw.* IV. the Liberty arrived but to *ſeven* Years after a felling of a *Foreſt* or *Purlieu*; and but *three* Years before, without ſpecial *Licenſe*: This was very narrow; but let us then look on *England* as an over-grown Country.

8. *Wood* in *Parks* was afterwards to be *four* Years *fenced*, upon *felling*; and yearling *Colts* and *Calves* might be put into incloſed *Woods* after *two*: By the 13 *Eliz.* five Years, and no other *Cattle* till ſix, if the Growth was under *fourteen* Years; or until *eight*, if exceeding that Age till the laſt *felling*. All which *Statutes* being by the *Act* of *Hen.* VIII. but *temporal*, this *Parliament* of *Elizabeth* thought fit to make *perpetual*.

9. Then,

9. Then, to prevent the deſtructive razing and converting of *Woods* to *Paſture*: No *Wood* of two *Acres*, and above two *Furlongs*, from the *Manſion-houſe*, ſhould be indulged: And the *Prohibitions* are good againſt *Aſſarts* made in *Foreſts*, *&c.* without *Licenſe*: The *Penalties* are indeed great; but how ſeldom inflicted? And what is now more eaſy, than compounding for ſuch a *Licenſe*?

In ſome Parts of *Germany*, where a ſingle *Tree* is obſerved to be extraordinary fertile, a conſtant and plentiful *Maſt-bearer*, there are *Laws* to prohibit their *felling* without ſpecial Leave: And it was well *enacted* amongſt us, that even the *Owners* of *Woods* within *Chaſes*, ſhould not cut down the *Timber* without View of *Officers*; this *Act* being in *Affirmance* of the *Common-law*, and not to be violated without *Preſcription*: See the *Caſe* cited by my Lord *Coke* in his *Comment* on *Littleton*. *Tenure Burgage*, Lib. ii. Sect. 170. Or if not within *Chaſes*, yet where a common Perſon had Liberty of Chaſe, *&c.* and this would be of much Benefit, had the Regarders performed their Duty, as 'tis at large deſcribed in the *Writ* of the 12 *Articles*; and that the *Surcharge* of the *Foreſts* had been honeſtly inſpected with the due *Perambulations*, and antient *Metes*. Thus ſhould the *Juſtices* of *Eyre* diſpoſe of no *Woods* without expreſs *Commiſſion*, and in convenient Places: *Minuti blaterones quercuum*, *culi*, *& curbi*, as our Law terms *Wind-falls*, *Dotterels*, *Scrags*, *&c.* and no others.

10. Care is likewiſe, by our Laws, to be taken that no unneceſſary *Imbezilment* be made by Pretences of Repair of *Paling*, *Lodges*, *Browſe* for *Deer*, &c. *Wind-falls*, *Root-falls*, dead and *Sear-trees*, all which is ſubject to the Inſpection of the Warders, Juſtices, Itinerants, *&c.* and even *Treſpaſſes* done *de Viridi* on Boughs of *Trees*, *Thickets*, and the like; which (as has been ſhewed) are very great Impediments to their Growth and Proſperity, and ſhould be duly looked after, and puniſhed; and the great Neglect of *Swainmote-Courts* reformed, *&c.* See *Conſuet. & Aſſiſ. Foreſ. Pannagium*, or *Paſtura pecorum & de Glandibus*, *Fleta*, &c. *Manwood's Foreſt-laws*: *Coke pla. fol.* 366. *Lib.* viii. *fol.* 138.

11. Finally, that the Exorbitance and Increaſe of devouring *Iron-mills* were looked into, as to their *Diſtance* and *Number* near the Seas, or navigable *Rivers*; and what if ſome of them were even *removed* into another World? the *Holy-land* of *New-England* (there to build Ships, erect Saw-Mills, near their noble *Rivers*) for they will elſe ruin *Old-England*. 'Twere better to purchaſe all our *Iron* out of *America*, than thus to *exhauſt* our *Woods* at *Home*, although (I doubt not) they might be ſo ordered, as to be rather a Means of conſerving them. There was a Statute made by Queen *Eliz.* to prohibit the converting of *Timber-trees* to *Coal*, or other *Fuel*, for the Uſe of *Iron-mills*, if the *Tree* were of one Foot ſquare, and growing within fourteen Miles of the Sea, or the greater Rivers, *&c.* 'Tis pity ſome of thoſe Places in *Kent*, *Suſſex* and *Surrey* were excepted in the *Proviſo*, for the Reaſon expreſſed in a Statute made 23 *Eliz.* by which even the employing of any *Under-wood* as well as great Trees, was prohibited within twenty-two Miles of *London*, and many other navigable Rivers, Creeks, and other leſſer Diſtances from ſome Parts of *Suſſex-Downs*, Cinque-Ports, Havens, *&c.*

One *Simon Sturtivant* had a *Patent* from K. *James* I. 1612. pretending to ſave 300000 *l.* a Year, by melting *Iron Oar*, and other

 Metals,

Book III. *Metals*, with *Pit-coal*, *Sea-coal*, and *Bruſh-fuel*; 'tis pity it did not ſucceed.

There are ſeveral *Acres* of *Wood-land*, of no mean Circuit, near *Rocheſter*, in the County of *Kent*, extending as far as *Bexley*, and indeed for many Miles about *Shooter*'s Hill, near the River of *Thames*, which, were his *Majeſty* Owner of, might in few *Years* be of an unvaluable Improvement and Benefit, conſidering how apt they are to grow *Foreſt*, and how opportune they lie for the *Uſe* of the *Royal Navy* at *Chatham*.

12. But yet to prove what it is to manage *Woods* diſcreetly; I read of one Mr. *Chriſtopher Darell*, a *Surrey* Gentleman of *Nudigate*, that had a particular *Indulgence* for the cutting of his *Woods* at pleaſure, though a great *Iron-maſter*; becauſe he ſo ordered his *Works*, that they were a Means of preſerving even his *Woods*, notwithſtanding thoſe unſatiable *Devourers*. This may appear a *Paradox*, but it is to be made out; and I have heard my own *Father* (whoſe *Eſtate* was none of the leaſt wooded in *England*) affirm, that a *Forge*, and ſome other *Mills*, to which he furniſhed much *Fuel*, were a Means of maintaining and improving his *Woods*; I ſuppoſe, by increaſing the *Induſtry* of *Planting*, and Care; as what he left ſtanding of his own *planting*, *encloſing* and *cheriſhing*, lately in the *Poſſeſſion* of my moſt honoured Brother *George Evelin* of *Wotton* in the ſame County (and now in *mine*) did (before the late *Hurricane*) ſufficiently evince: A moſt laudable Monument of his *Induſtry*, and rare *Example*; for without ſuch an *Example*, and ſuch an *Application*, I am no *Advocate* for *Iron-works*, but a declared *Denouncer*. But *Nature* has thought fit to produce this waſting *Oar* more plentifully in *Wood-land*, than any other Ground, and to enrich our *Foreſts* to their own Deſtruction.

> [a] *O* Poverty! *ſtill ſafe*; *and therefore found*
> *Inſep'rably with* Miſchiefs *under Ground!*
> Woods *tall and reverend*, *from all Time appear*
> Inviolable, *where no* Mine *is near*.

For ſo our ſweet *Poet* deplores the Fate of the *Foreſt* of *Deane*.

13. The ſame *Act* we have confirmed and enlarged in the twenty-ſeventh of Queen *Eliz. Chap.* xix. for the preſerving of *Timber-trees*, and the Penalties of impairing *Woods* much increaſed; the *Tops* and *Offal* only permitted to be made uſe of for this Employment.

Nay, our own *Law* makes it *Waſte*, to cut down high Trees (though they be not properly *Timber*) ſtanding for *Safe-guard* and Defence of a *Manſion-houſe*, though it be done for neceſſary *Repairs*; whilſt yet many (and with Reaſon) hold it *un-healthful* to ſuffer a Dwelling to be *choaked* with Trees, for want of free Paſſage to the *Air*. To remedy this, there needs only a competent Diſtance to be left void. But, as a *Noble* * *Perſon* obſerves, People in theſe Days are ſo diſpoſed to quarrel with *Timber*, as there ſhall need no Advice to *demoliſh Trees* about their *Houſes* upon this Account: In the mean Time, as to the Incroachment of Trees ſo near our *Dwellings*, for the freer

* *Lord North. Oeconom.*

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[a] O ſemper bona pauperies! & conditus altâ
Theſaurus tellure nocens! O ſemper ovantes,
Integræ, ſalvæque ſolo non divite Silvæ!

COULEII Pl. Lib. vi.

Inter-

Intercourſe of *Air*, the late dreadful *Silvifragi* Storms have cleanſed thoſe Places by a *Remedy* worſe than the *Diſeaſe*, ſufficient to deter us from planting not only too near our *Habitations*, but from priding ourſelves in our more ſtately *Avenues*, the late *Boaſts* of our *Seats*, as by ſad *Experience* my ſelf and thouſands more have found, that there is nothing *ſtable* in this World, which *inviſible Spirits* cannot ſubvert and demoliſh, when God permits them to do *Miſchief*, and convince thoſe who believe there are none, becauſe they do not *ſee*, though they *feel* their Effects. CHAP. VI.

14. As to the Law of *Tythes*, I find *Timber-trees* pay none, but others do, both for *Body*, *Branches*, *Bark*, *Fruit*, *Root*, and even the *Suckers* growing out of them; and the *Tenth* of the Body ſold, or kept: And ſo of *Willows*, *Sallows*, and all other *Trees* not apt for *Timber*: Alſo of *Silva Cædua*, as *Coppices* and *Under-woods* pay the *Tenth* whenever the *Proprietor* receives his *nine* Parts. But if any of theſe we have named un-exempted, are cut only for *Mounds*, *Fencing*, or *Plow-boot* within the Pariſh in which they grow, or for the *Fuel* of the *Owner*, no *Tythes* are due, though the *Vicar* have the *Tythe-wood*, and the *Parſon* that of the Places ſo incloſed; nor are *Under-woods* grubbed up by the Roots *tythable*, unleſs for *this* and any of the former Caſes there be *Preſcription*. But for *Timber-trees*, ſuch as *Oak*, *Aſh*, *Elm* (which are accounted *Timber* in all Places after the firſt *twenty Years*) alſo *Beech*, *Horn-beam*, *Maple*, *Aſpen*, and even *Haſel* (many of which are in ſome *Countries* reputed *Timber*) they are not to pay *Tythes*, unleſs they are fell'd before the ſaid Age of *twenty Years* from their firſt *planting*.

See L. Bp. of Worceſter *concerning Tythes of Parochial Clergy*, p. 268.

Some think, and pretend, that no *Tythe* is due where is no *Annual Increaſe*, as *Corn* and other *Grain*, *Hay*, and *Fruit* of *Trees*, and ſome *Animals*; and that therefore *Silva Cædua* (till it become *Timber*) is exempted: But a *Parliament* at *Sarum* did make it *tythable*, in which are named even *Willows*, *Alder*, *Beech*, *Maple*, *Haſel*, &c.

In the *Wild* of *Suſſex*, *Tythe-wood* is not paid, as for *Faggots*; but in the *Downs* they pay for *both*, as I am told; at which I wonder, there being ſo little *Wood* at all upon them, or likely to have ever been. *Note here*,

If the *Owner* fell a *Fruit-tree* (of which the *Parſon* has had *Tythe* that *Year*) and convert the *Wood* into *Fuel*, the *Tythe* ſhall ceaſe; becauſe he cannot receive the *Tythe* of one Thing twice in one *Year*.

Beech, in Countries where it abounds, is not *tythable*; becauſe in ſuch Places 'tis not accounted *Timber*. 16 *Jac. Co. B. Pinder's Caſe.*

Cherry-trees in *Buckinghamſhire* have been adjudged *Timber*, and *Tythe-free*. *Paſch.* 17 *Jac.* B. R.

If a Tree be lopped under *twenty Years* Growth, and afterwards be permitted to grow paſt *twenty Years*, and then be lopped again, no *Tythe* is due for it, though at the firſt cutting it were not ſo.

If *Wood* be cut for *Hedges*, which is not *tythable*, and any be left of it unemployed, no *Tythe* ſhall be paid for it.

If *Wood* be cut for *Hop-poles* (where the *Parſon* or *Vicar* has *Tythe-hops*) in this Caſe he ſhall not have *Tythe* of *Hop-poles*.

If a great *Wood* conſiſt chiefly of *Under-wood tythable*, and ſome great *Trees* of *Beech*, or the like grow diſperſedly amongſt them, *Tythe* is due, unleſs the *Cuſtom* be otherwiſe, of all both great and leſſer together: And in like manner, if a *Wood* conſiſt for the moſt Part of

Timber-

Book III. *Timber-trees*, with ſome ſmall Scatterings of *Under-wood* amongſt them, no *Tythe* ſhall be paid for the *Under-wood* or *Buſhes*. *Frin.* 19 *Jac.* B. R. *Adjudg.* 16 *Jac.* in C. B. *Leonard's Caſe.*

No *Tythe* is to be paid of Common of *Eſtovers*, or the *Wood* burnt in one's *Houſe*. Now as to the Manner of *Payment*:

To give the *Parſon* the tenth *Acre* of *Wood* in a *Coppice*, or the *tenth Cord* (provided they are equal) is a good Payment, and ſetting forth of *Tythe*, eſpecially if the *Cuſtom* confirm it.

The *Tythe* of *Maſt* of *Oak* or *Beech*, if ſold, muſt be anſwered by the *tenth Penny*; if eaten by *Swine*, the *Worth* of it. And thus much we thought fit to add concerning *Predial Tythes*; who has deſire to be farther informed, may conſult *Charta de Foreſta*, with *Manwood's* Treatiſe of *Foreſt-Laws*; *Cromate* on my Lord *Coke's Rep.* 11, 48, 49, 81. *Plow.* 470. *Brownlow's Rep.* 1 *Part* 94. 2 *Part* 150. D. and St. 169, *&c.* and that very uſeful, as well as compendious *Engliſh Hiſtorical Library*, *Part* iii. *Chap.* iv. lately publiſhed by the worthy *Arch-Deacon*, now *Biſhop* of *Carliſle*. But let us ſee what others do.

15. The King of *Spain* has, near *Bilboa*, ſixteen times as many *Acres* of *Coppice-wood* as are fit to be cut for *Coal* in one *Year*; ſo that when 'tis ready to be fell'd, an *Officer* firſt marks ſuch as are like to prove *Ship-timber*, which are let ſtand, as ſo many *ſacred* and *dedicate* Trees; by which Means the *Iron-works* are plentifully ſupplied in the ſame Place, without at all diminiſhing the the Stock of *Timber*. Then in *Biſcay* again, every *Proprietor* plants three for one which he cuts down; and the *Law* obliging them, is moſt ſeverely executed: See what we have already mentioned of the Duke of *Lunenburg* in this *Chapter*, and that of the *Walnut-tree*. There indeed are few or no *Coppices*, but all are *Pollards*; and the very *Lopping* (I am aſſured) does furniſh the *Iron-works* with ſufficient to ſupport them.

16. What the Practice is for the maintaining of theſe kind of *Plantations* in *Germany* and *France*, has already been obſerved to this *Illuſtrious Society* by the learned Dr. *Merret*, *viz.* that the *Lords* and (for the *Crown-lands*) the *King's* Commiſſioners, divide the *Woods* and *Foreſts* into eighty Partitions; every Year felling one of the Diviſions; ſo as no *Wood* is felled in leſs than *fourſcore* Years: And when any one *Partition* is to be cut down, the *Officer* or *Lord* contracts with the *Buyer*, that he ſhall at the Diſtance of every *twenty* Foot (which is ſomewhat near) leave a good, fair, ſound and fruitful *Oak* ſtanding: Thoſe of 'twixt *forty* and *fifty* Years they reckon for the beſt, and then they are to *fence* theſe Trees from all ſorts of *Beaſts* and Injuries for a competent Time; which being done at the Seaſon, down fall the *Acorns*, which (with the *Autumnal* Rains beaten into the Earth) take Root, and in a ſhort Time furniſh all the *Wood* again, where they let them grow for *four* or *five* Years, and then grub up ſome of them for *Fuel*, or *Tranſplantations*, and leave the moſt *probable* of them to continue for *Timber*.

17. The *French* King permits none of his *Oak-woods*, though belonging (ſome of them) to *Monſieur* (his Royal Brother) in *Appenage*, to be cut down; till his own *Surveyors* and *Officers* have firſt marked them out; nor are any fell'd beyond ſuch a Circuit: Then are they ſufficiently fenced by him who *buys*; and no *Cattle* whatſoever ſuffered to be put in, till the very *Seedlings* (which ſpring up of the *Acorns*) are

are perfectly out of Danger. But *these*, and many other wholsome *Ordinances*, especially as they concern the *Forest* of *Deane*, we have comprised in the late *Statute* of the *twentieth* of his *Majesty*'s Reign, which I find enacted five Years after the first *Edition* of this *Treatise*: And these *Laws* are worthy our perusal; as also the *Statute* prescribing a *Scheme* of *Proportions* for the several Scantlings of *Building-Timber* (besides what we have already touched, *Chap.* iv. *Book* iii. *&c.*) which you have 19 *Car.* II. entituled, *An Act for the Rebuilding of* London; to which I refer the Reader.

In the mean Time, *Commissioners* made *Purveyors* for *Timber* (though for the *King*'s Use) cannot, by that *Authority*, take *Timber-trees* growing upon any Man's *Free-hold*, it being prohibited by *Magna Charta*, Cap. xxi. *Nos nec Ballivi nostri, nec alii, cupimus Boscum alienum ad Castra, vel ad alia agenda nostra, nisi per Voluntatem cujus Boscus ille fuerit.*

We might here enlarge this Title, by shewing how different the *Forest-Laws* are from the *Common-Laws* of *England*, both as to their *Antiquity* and extream Severity against all Offenders (of what Degree soever) till the Oppression was somewhat qualified by the *Charta de Foresta*, and afterwards by yet more favourable * Concessions; since, indeed, our *Kings*, after the Rigour and Example of the Stern *Northern* Princes, rendered it intolerable: But because much of this concerned the preserving *Royal Game*; when as to Timber-trees (like *Germany*) the whole Island was almost but one vast *Forest* and *Wood*, so abounding, that what People might have had almost for carrying off the Ground it grew on, is now grown so scarce in those very Places, as that *Fuel* is sold by weight: I think Mr. *Cambden* mentions *Oxfordshire*, even so long since: And here I might mention that vast *Caledonian Forest*, heretofore in *Scotland* (whence the *Sea* has its Name) and the People *Caledonians*, having now not so much as a single *Tree* to shew for it. Have we not then the greatest Reason in the World to take all imaginable Care for the Preservation and Improvement of this precious *Material?*

* *Assises Forestæ*, &c.

We have said nothing of the *Laws* against *Wood-stealers* (especially those who cut up to the very *Roots* the most hopeful and thriving young *Oaks*, and sell Bundles of them for *Walking-staves*, *&c.*) severely * punished in other *Countries*, but leave the rest to our learned in the *Laws*, craving Pardon for the *Errors* I may have fallen into, by presuming to discourse of Matters out of my *Element* and *Profession.*

* *See* Groenzung *de L. L. abrog. in* Hollandia *ad Tit. Arbor furt* Cæsar. *L.* ii. (One cruelly whipped at the *Hague*.) See also *Carpzovius in Praxi Crim.* Part ii. Quest. 83. Num. 2. Seqq. and several others: The *German Law* concerning *Forests*, are in abundance, and at large recited by *Klochius* and *Pellerus.*

CHAP. VII.

The Paræneſis *and* Concluſion, *containing ſome* Encouragements *and* Propoſals *for the* Planting *and* Improvement *of His* Majeſty's Foreſts, *and other* Amœnities *for* Shade *and* Ornament.

1. SINCE our *Foreſts* are undoubtedly the greateſt *Magazines* of the *Wealth* and *Glory* of this *Nation*, and our *Oaks* the trueſt *Oracles* of its *Perpetuity* and *Happineſs*, as being the only Support of that *Navigation* which makes us fear'd Abroad, and flouriſh at Home; it has been ſtrangely wondered at by ſome good *Patriots*, how it comes to paſs, that many *Gentlemen* have frequently repaired, or gained a ſudden *Fortune*, with *plowing* part of their *Parks*, and ſetting out their fat Grounds to *Gardeners*, *&c.* and very wild *Wood-land* Parcels (as may be inſtanced in ſeveral Places) to Dreſſers of *Hop-yards*, &c. whiles the *Royal Portion* lies folded up in a *Napkin*, uncultivated and neglected, eſpecially thoſe great and ample *Foreſts*; where, though *plowing* and *ſowing* have been forbidden, a *Royal Command* and *Deſign* may well diſpenſe with it, and the breaking up of thoſe *Intervals*, advance the Growth of the Trees to an incredible *Improvement*.

2. It is therefore inſiſted on, that there is not a cheaper, eaſier, or more prompt *Expedient* to advance *Ship-timber*, than to ſollicit, that in all his *Majeſty*'s *Foreſts*, *Woods* and *Parks*, the ſpreading *Oak*, *&c.* (which we have formerly deſcribed) be cheriſhed, by plowing and ſowing *Barley*, *Rye*, *&c.* (with due Supply of *Culture* and *Soil*, between them) as far as may (without danger of the *Plow-ſhare*) be broken up. But this is only where theſe Trees are arrived to ſome Magnitude, and ſtand at competent Diſtances; a hundred, or fifty Yards (for their *Roots* derive Relief far beyond the Reach of any *Boughs*) as do the *Walnut-trees* in *Burgundy*, which ſtand in their beſt *Plow'd-lands*.

3. But, that we may particulariſe in his *Majeſty*'s *Foreſts* of *Deane*, *Sherewood*, *Enfield-Chaſe*, *&c.* and in ſome ſort gratify the *Quæries* of the Honourable the Principal *Officers* and *Commiſſioners* of the *Navy*; I am adviſed by ſuch as are every way *judicious*, and of long Experience in thoſe Parts, that to *encloſe* would be an excellent Way: But it is to be conſidered, that the People, *viz. Foreſters*, and *Borderers*, are not generally ſo civil and reaſonable as might be wiſhed; and therefore to deſign a ſolid *Improvement* in ſuch Places, his Majeſty muſt aſſert his *Power*, with a firm and high Reſolution to reduce theſe Men to their due *Obedience*, and to a Neceſſity of ſubmitting to their own and the publick Utility, though they preſerved their *Induſtry* this Way, at a very tolerable Rate, upon that Condition; while ſome Perſon of Truſt and Integrity did regulate and ſuperviſe the *Mounds* and *Fences*, and deſtine ſome Portions frequently ſet apart for the raiſing and propagating of *Wood*, till the whole *Nation* were furniſhed for *Poſterity*.

4. Which

4. Which Work if his *Majeſty* ſhall reſolve to accompliſh, he will leave ſuch an everlaſting *Obligation* on his *People*, and raiſe ſuch a *Monument* to his *Fame*, as the *Ages* for a thouſand Years to come, ſhall have cauſe to celebrate his precious *Memory*, and his Royal Succeſſors to emulate his Virtue. For thus (beſides the future Expectations) it would in preſent, be no Deduction from his *Majeſty's Treaſure*, but ſome Increaſe, and fall in Time to be a fair and worthy *Acceſſion* to it; whiles this kind of *Propriety* would be the moſt likely Expedient to *civilize* thoſe wild and poor *Borderers*, and to ſecure the vaſt and ſpreading Heart of the *Foreſt*, which, with all this *Indulgence*, would be ample enough for a princely *Demeſnes*: And if the Difficulty be to find out who *knows*, or *acknowledges* what are the *Borderers*; this *Article* were worthy and becoming of as ſerious an *Inquiſition*, as the *Legiſlative Power* of the whole *Nation* can contrive.

5. The Sum of all is; get the *Bordures* well *tenanted*, by long *Terms*, and eaſy *Rents*, and this will invite and encourage *Takers*; whilſt the *middle*, moſt ſecure, and interior Parts would be a *Royal Portion*. Let his *Majeſty* therefore admit of any willing *Adventurers* in this vaſt *Circle* for ſuch *Encloſures* in the *Precinct*; and rather of *more*, than of *few*, though an hundred or two ſhould join together for any *Encloſure* of five hundred *Acres* more or leſs; that *Multitudes* being thus engaged, the Conſideration might procure and facilitate a full *Diſcovery* of latter *Encroachments*, and fortify the Recovery by favourable *Rents*, *Improvements* and *Reverſions* by *Copyhold*, or what other *Tenures* and *Services* his Majeſty ſhall pleaſe to accept of.

6. Now for the planting of *Woods* in ſuch Places (which is the main Deſign of this whole Treatiſe) the *Hills* and *rough Grounds* will do well; but they are the rich fat *Vales* and *Flats* which do beſt deſerve the Charge of *Walls*, ſuch as that *Spot* affords; and the *Hawthorn*, well plaſh'd (ſingle or double) is a better and more natural *Fence* than *unmortar'd Walls*, could our *Induſtry* arrive to the making of ſuch as we have deſcribed: Beſides, they are laſting and profitable; and then one might allow ſufficient *Bordure* for a *Mound* of any Thickneſs, which may be the firſt Charge, and well ſupported and rewarded by the Culture of the Land thus *encloſed*.

7. For *Example*, ſuppoſe a Man would take *in* five hundred Acres of good *Land*, let the *Mounds* be of the wildeſt Ground, as fitteſt for *Wood*: Two Hedges, with their *Vallations* and *Trenches*, will be requiſite in all the *Round*, *viz.* one next to the *Encloſure*, the *other* about the Thicket, to fence it from *Cattle*: This, between the two Hedges (of whatſoever Breadth) is fitteſt for *Plantations*. In theſe Hedges might be tried the Plantation of *Stocks*, in the *Intervals* all manner of *Wood-ſeeds* ſown (after competent Plowings) as *Acorns*, *Maſt*, *Fir*, *Pine*, *Nuts*, *&c.* the *firſt* Year chaſing away the *Birds*, becauſe of the *Fir* and *Pine* Seeds, for Reaſons given. The ſecond Year looſening the Ground, and thinning the Supernumeraries, *&c.* this is the moſt frugal Way: Or by another *Method*, the waſte Places of *Foreſts* and *Woods* (which by thorough Experience is known and tried) might be perfectly cleanſed; and then allowing two or three *Plowings*, well rooted *Stocks* be ſet, cut and trimmed as is requiſite; and that the *Timber-trees* may be excellent, thoſe afterwards *Coppiced*, and the choiceſt *Stocks* kept ſhreaded. If an *Encloſure* be ſowed, the

Seeds

Book III. *Seeds* may be (as was directed) of all the *Species*, not forgetting the beſt *Pines*, *Fir*, &c. Whiles the yearly Removal of very Incumbrances only, will repay the *Workmen*, who ſell the *Quick*, or reſerve it to ſtore other Encloſures, and ſoften the circumjacent Grounds, to the very great Improvement of what remains.

8. And how if in ſuch *Fencing-works*, we did ſometimes imitate what *Quintus Curtius*, *Lib.* vi. has recorded of the *Mardorum Gens*, near to the Confines of *Hyrcania*; who did, by the cloſe planting of Trees alone upon the Bordures, give ſo ſtrange a Check to the Power of that great Conqueror *Alexander*? They were a *barbarous* People indeed, but in this worthy our Imitation; and the Work ſo handſomely, and particularly deſcribed, that I ſhall not grieve to recite it. *Arbores denſæ ſunt de induſtria conſitæ, quarum teneros adhuc ramos manu flectunt, quos intortos rurſus in ſerunt terræ: Inde, velut ex alia radice lætiores virent trunci: hos, qua natura fert, adoleſcere non ſinunt; quippe alium alii, quaſi nexu conſerunt: qui ubi multa fronde veſtiti ſunt, operiunt terram. Itaque occulti ramorum velut laquei perpetuâ ſepe iter, claudunt*, &c. The Trees (*ſaith he*) were planted ſo near and thick together of Purpoſe, that when the *Boughs* were yet young and flexible, bent and wreath'd within one another, their Tops were bowed into the Earth (as we *ſubmerge our* Layers) whence taking freſh *Roots*, they ſhot up new Stems, which not being permitted to grow as of themſelves they would have done, they ſo knit and perplex'd one within another, that when they were clad with Leaves, they even covered the Ground, and encloſed the whole Country with a kind of living Net, and impenetrable Hedge, as the *Hiſtorian* continues the Deſcription. And this is not unlike what I am told is frequently practiſed in divers Places of *Devon*; where the *Oaks* being planted very near the Foot of thoſe high *Mounds*, by which they ſeparate their *Lands*, ſo *root* themſelves into the *Bank*, that when it falls and crumbles down, the *Fence* continues ſtill maintained by them with exceeding Profit. Such Works as theſe would become a *Cato* or *Varro* indeed, one that were *Pater Patriæ, non ſibi ſoli natus*, born for Poſterity; but we are commonly of another Mould,

——— *& fruges conſumere nati.*

9. A fair Advance for ſpeedy Growth, and noble Trees (eſpecially for *Walks* and *Avenues*) may be aſſuredly expected from the *Graffing* of young *Oaks* and *Elms* with the beſt of their Kinds; and where the goodlieſt of theſe laſt are growing, the Ground would be *plow'd* and finely *raked* in the Seaſon when the *Scales* fall; that the Showers and Dews faſtning the Seed where the Wind drives it, it may take *Root*, and haſten (as it will) to a ſudden Tree; eſpecially, if ſeaſonable *Shreading* be applied, which has ſometimes made them arrive to the Height of twelve Foot by the firſt three Years, after which they grow amain. And if ſuch were planted as near to one another as in the *Examples* we have alledged, it is almoſt incredible what a *Paling* they would be to our moſt expoſed *Plantations*, mounting up their *wooden Walls* to the *Clouds*. And indeed the Shelving and natural Declivity of the *Ground* more or leſs to our unkind *Aſpects*, and bleak *Winds*, does beſt direct to the *Thickening* of theſe Protections; and the Benefit of that ſoon appears, and recompences our Induſtry in the Smoothneſs and Integrity of the *Plantations* ſo defended.

10. That

10. That great Care be had of the *Seeds* which we intend to ſow, has been already adviſed; for it has been ſeen, that *Woods* of the ſame Age, planted in the ſame Soil, diſcover a viſible Difference in the *Timber* and *Growth*; and where this Variety ſhould happen, if not from the Seed, will be hard to interpret; therefore let the *Place*, *Soil* and *Growth* of ſuch Trees, from whence you have your Seeds, be diligently examined; and why not this, as well as in our Care of *Animals* for our Breed and Store?

11. As to the *Form*, obey the natural *Site*, and ſubmit to the ſeveral Guiſes; but ever declining to encloſe *High-ways* and *Common-roads* as much as poſſible. For the reſt, be pleaſed to reflect on what we have already ſaid, to encourage the *planting* of the large ſpreading *Oak* above all that *Species*; the Amplitude of the *Diſtance*, which they require, reſigned to the Care of the *Verderer* for graſing *Cattle*, *Deer*, *&c.* and for the great and maſculine Beauty which a wild *Quincunx*, as it were, of ſuch *Trees* would preſent to your Eye.

12. But to advance the *Royal Foreſts* to this Height of Perfection, I ſhould again urge the Removal of ſome of our moſt miſchievouſly placed *Iron-mills*; if that at leaſt be true which ſome have affirmed, that we had *better Iron*, and cheaper from *Foreigners*, when thoſe *Works* were Strangers amongſt us. I am informed, that the *New-Engliſh* (who are now become very numerous, and hindred in their Advance and Proſpect of the *Continent* by their Surfeit of the *Woods*, which we want) did, about twelve Years ſince, begin to clear their *High-ways* by two *Iron-mills*. I am ſure their *Zeal* has ſufficiently waſted our ſtately *Woods* and *Steel* in the Bowels of their *Mother Old-England*; and 'twere now but expedient, their *Brethren* ſhould haſten thither to ſupply us with *Iron* for the *Peace* of our Days; whilſt his *Majeſty* becomes the great *Sovereign* of the *Ocean*, free *Commerce*, *Nemorum Vindex & Inſtaurator magnus*. This were the only Way to render *both* our *Countries* habitable indeed, and the fitteſt *Sacrifice* for the *Royal Oaks*, and their *Hamadryads*, to whom they owe more than a ſlight Submiſſion: And he that ſhould deeply conſider the prodigious *Waſte* which theſe voracious *Iron* and *Glaſs-works* have formerly made but in one *County* alone, the *County* of *Suſſex*, for one hundred and twenty Miles in Length, and thirty in Breadth (for ſo wide and ſpacious was the antient *Andradſwald*, of old one entire *Wood*, but of which there remains now little or no Sign) would be touched with no mean *Indignation*: I named the *Suſſex Glaſs-works*; but what Spoil and prodigious Conſumption the *Salt-works* had made in *Worceſterſhire*, ſee the Complaint of Mr. *Cambden*, ſpeaking of *Feckenham-Foreſt* in his Days, now neceſſitated to uſe other *Coal*; certainly, the goodly *Rivers* and *Foreſts* of the other *World*, would much better become theſe deſtructive Works, our *Iron* and *Saw-mills*, than theſe exhauſted Countries, and we prove Gainers by the timely Removal: I have ſaid this already, and I cannot too often inculcate it for the Concerns of a Nation, whoſe only Protection (under *God*) are her *wooden Walls*.

13. Another thing to be recommended (and which would prove no leſs than thirty Years, in ſome Places forty, and generally twenty Years *Advance*) were a good (if well executed) *Act* to ſave our *Standards*, and *bordering* Trees from the *Ax* of the Neighbourhood: And who would not preſerve *Timber*, when within ſo few Years the *Price* is al-

Book III. moſt quadrupled? I aſſure you *Standards* of twenty, thirty, or forty Years Growth, are of a long Day for the Concernments of a Nation.

14. And though we have in our general *Chapter* of *Coppices*, declared what by our *Laws* and common *Uſage* is expected at every *Fell* (and which is indeed moſt requiſite, till our Store be otherwiſe ſupplied) yet might much even of that Rigour be abated, by no unfrugal Permiſſions to take down more of the *Standards* for the Benefit of the *Under-woods* (eſpecially where, by *over-dropping* and *Shade*, they interrupt the kindly *Dews*, *Rains* and *Influences* which nouriſh them) provided that there were a proportionable Number of *Timber-trees* duly and throughly planted and preſerved in the *Hedge-rows* and *Bordures* of our Grounds; in which Caſe, even the total clearing of ſome *Coppices* would be to their great Advance, as by ſad Experience has been taught ſome good *Husbands*, whoſe Neceſſities ſometimes forced them to violate their *Standards*, and more grown *Trees*, during the late *Tyranny*.

15. Nor will it be here unſeaſonable to adviſe, that where *Trees* are manifeſtly perceived to decay, they be marked out for the *Ax*, that ſo the *younger* may come on for a Supply, eſpecially where they are chiefly *Elms*; becauſe their *Succeſſors* haſten to their Height and Perfection in a competent Time; but beginning once to grow ſick of *Age*, or other Infirmity, ſuddenly impair, and loſe much of their Value yearly; beſides, that the Increaſe of *this*, and other ſpeedy *Timber*, would ſpare the more *Oak* for *Navigation*, and the ſturdier Uſes.

How goodly a Sight were it, if moſt of the *Demeſnes* of our *Country Gentlemen* were crowned and incircled with ſuch ſtately Rows of *Limes*, *Firs*, *Elms*, and other ample, ſhady and venerable *Trees* as adorn *New-Hall* in *Eſſex*, the Seat of that *Suffolk* Knight near *Yarmouth*, our neighbouring Paſtures at *Barnes*, with what has been planted of later Years by the illuſtrious *Marquis* of *Worceſter*, the moſt accompliſhed Earl of *Eſſex*, and even in leſs fertile Soils, though purer *Air*, at *Euſton*, by the Right Honourable the Earl of *Arlington*, *Lord Chamberlain* of his *Majeſty*'s Houſhold, and at *Cornbury* by the late *Lord Chancellor*, the *Earl* of *Clarendon*, and is done, nearer this Imperial City, by the *Earl* of *Danby*, late *Lord High Treaſurer* of *England*, at *Wimbleton*, the noble *Earl* of *Rocheſter* (ſucceeding him in that ſupreme Office) at *New-Park*, the Duke of *Norfolk* at *Albery*, now the Lord *Guernſey*'s, Sir *Robert Cooke* at *Durdence*, at *Epſom*, now my Lord *Barkley*'s, at *Bedington* an antient Seat of the *Carews*, famous for the firſt *Orange-trees* planted in the naked Earth one hundred Years ſince, and ſtill flouriſhing, *Row-hampton*, *Loſely*, *Aſhſtead*, Seats, Parks and Plantations, the Earl of *Devonſhire*'s *Mores*, Sir *Robert Howard*, &c.

Beſides what might have been ſeen (as to me they were in Perfection and with Admiration) the Royal Seats of *Oatland*, *Richmond*, and above all *Nonſuch*, deſcribed by the *Judicious Cambden*, which deſerved *Eulogies*.

All theſe, and more, in my own ſweet County of *Surrey*, inferior to none for Pleaſure and Salubrity of the *Air*: To which we add the princely *Seiourns* of the adjoining County, *Eltham* and *Greenwich*, for its *Park* and *Proſpect*, not only *emulous*, but in many Reſpects *exceeding* that of the famous *Thraſian Boſphorus* from *Conſtantinople*: That *Palace*, namely at *Greenwich*, now turned into a ſtately and ca-

cious *College* (the incomparable Work of that accomplished *Architect* Sir *Chriſ. Wrenn*) to which I had the Honour to lay one of the *Firſt Foundation Stones*, as the *Firſt Treaſurer* of that *Royal Structure*, erected for the Reception and Encouragement of *emerited* and well deſerving *Sea-men* and *Mariners*, for its glorious Fabrick and Conveniencies exceeding any in *Europe*, dedicated to that excellent Purpoſe. To theſe alſo belongs a *Park*, as there did to that of *Eltham*. Nearer the *Metropolis* yet are thoſe of St. *James's*, *Hide-Park*, and that ſweet *Villa* (as now built, planted and embelliſhed) of *Kenſington*, deſerving a particular Deſcription; and for all that can be deſirable of Magnificence, *Hampton-Court*, truly great, in a moſt beautiful *Flat*; the *Palace*, *Gardens*, *Canal*, *Walks*, *Groves* and *Parks*; the ſweet and ſilent *Thames* gliding her ſilver Streams to the *triumphal Winſonian Tempe*, raiſing its ſtately Head, and which alone has in View an *Hemiſphere*, as far as *Eyes* and *Teleſcopes* can diſtinguiſh *Earth* from *Heaven*: Thus from the *Keape*, the *Terrace*, *Parks* and *Foreſts*, equaling, nay exceeding any Thing *Europe* can boaſt of.

Other ſweet and delectable Country Seats and Villas of the *nobleſs*, *rich* and *opulent Citizens* (about our *Auguſta*) built and environ'd with *Parks*, *Padocks*, *Plantations*, &c. adapted to Country and Rural Seats, diſperſed through the whole Nation, conſpicuous not only for the *Structure* of their *Houſes*, built after the beſt Rules of *Architecture*, but for *Situation*, *Gardens*, *Canals*, *Walks*, *Avenues*, *Parks*, *Foreſts*, *Ponds*, *Proſpect* and *Viſtas*, *Groves*, *Woods*, and large *Plantations*, and other the moſt charming and delightful *Receſſes*, natural and artificial: But to enumerate and deſcribe what were extraordinary in theſe and the reſt, would furniſh *Volumes*: For who has not either *ſeen*, *admired*, or *heard* of

Audly-End, *Althorp*, *Awkland*, *Allington*, *Amphill*, *Aſtwell*, *Aldermaſton*?

Bolſover, *Badminton*, *Breckly*, *Burghly* on the *Hill*, and the other *Burghly*; *Bockton*, *Buckhurſt*, *Buckland*, *Bellroiro*, *Blechington*, *Beſtwood*, *Broom-hall*?

Caſtle-Riſing, *Caſtle-Aſhby*, *Chatſworth*, *Charſley*, *Cornbery*, *Caſiabery*, *Cobham*, *Cowdrey*, *Caverſham*, *Cranburn-Park*, *Charlton*, *Copt-Hall*, *Claverton*? famous for Sir *W. Baſſet*'s Vine-yard, producing forty Hogſheads of *Wine* yearly. Nor muſt I forget that of *Deepden*, planted by the Honourable *Charles Howard* of *Norfolk*, my worthy Neighbour in *Surrey*.

Drayton, *Doringtон-Park*, *Deane*?

Eaſtwell, *Euſton*, *Eccleſwold*, *Edſcomb*, *Eaſton*, *Epping*?

Falſton, *Flankford*?

Grayſtock, *Goodrick*, *Grooby*, *Grafton*, *Golden-Grove*?

Holdenby, *Haddon*, *Hornby*, *Hatfield*, *Haland*, *Hoathfield*, *Hinton*, *Holm-Pierpoint*, *Horſtmounceaux*?

Iching field?

Kirby, *Knowesby*?

Longleat, *Latham*, *Lenſal*, *Latimer*, *Lawnsbourgh*?

More-Park, *Mulgrave*, *Marlborough*?

Normanby, *North-hall*, *Norborough*, *Newnham*?

St. *Oſtlo*, *Oxnead*?

Petworth, *Penſhurſt*, *Paſton-Hall*?

Quarendon, *Quickſwood*?

Ragland,

Ragland, *Rutford*, *Ragbey*, *Ricot*?
Sherborn, *Sherley*, *Swallowfield*, *Shasford*, *Shaftsbury*, *Stanſted*, *Scots-hall*, *Sands* of the *Vine*?
Theobalds, *Thorn-kill*, *Thorny*?
Up-Park?
Wilton, *Wreſt*, *Woburn*, *Welbeck*, *Worksop*, *Woodſtock*, which, as *Cambden* tells us, was the firſt Park in *England*; as it is like to be one of the moſt magnificent and princely *Palaces* and *Seats* of that *illuſtrious Hero*, his *Grace* the *Duke* of *Marlborough*, to whoſe *Courage* and *Conduct* not the Safety of the *Empire* alone, but of *Europe* is due, whilſt the *Actions* at *Bleinheim* and *Schellemberg* may challenge equal *Trophies* with *Miltiades* and *Cæſar*, at *Marathon* and *Pharſalia*. But to proceed, *Wimburn*, *Writtle-Park*?

And generally all thoſe Seats which go under the Names of *Caſtles* and *Halls* (as in *Yorkſhire*, *Eſſex*, *&c.*) were ſtored with noble Parks full of Timber, omitted here; which, but to have named, would overſwell the *Alphabet*; without reckoning thoſe of *Ireland*, which few Years ſince was an inexhauſtible Magazine of Timber, deſtroyed by the *Cromwellian Rebels*, not only in that Kingdom, but through all *England*: As to *Parks*, there were more in this Nation than in all *Europe* beſide: And moſt of all that *Catalogue* above-named, have yet their *Parks* full of good *Timber-trees*, induſtriouſly improved by the Owners, ſince the Spoil of the late *Uſurpers* and *Sequeſtrators*.

To theſe ſhould I add the vaſt *Foreſts* (moſt of them belonging to the *Crown*) as that of *Deane*, *New-Foreſt*, *Windſor*, *Aſhdown*, *Leonard*, *Sherewood*, *Epping*, *Panbet*, *Chute*, &c. *Foreſts* for the moſt Part without Trees, and ſeveral of them together heretofore comprehended in that vaſt *Andradſwald* already mentioned, of one County only. There were formerly twenty *Groves* in *Clarendon-Park* near *Salisbury*, celebrated by *Meſokerus*, cited by *Cambden*, that were every one of them a *Mile* in compaſs. In a Word, to give an *Inſtance* of what Store of *Woods* and *Timber* of prodigious Size, there were growing in our little County of *Surrey* (the neareſt of any to *London*) and plentifully furniſhed both for Profit and Pleaſure (with ſufficient Grief and Reluctancy I ſpeak it) my own *Grandfather* had ſtanding at *Wotton*, and about that Eſtate, *Timber*, that now were worth 100000 *l.* Since of what was left my *Father* (who was a great *Preſerver* of *Wood*) there has been 30000 *l.* worth of *Timber* fallen by the *Ax*, and the *Fury* of the late *Hurricane* and *Storm*: Now no more *Wotton*, ſtript and naked, and aſhamed almoſt to own its Name.

All which conſidered (for there are many other Places and Eſtates which have ſuffered the like Calamity) ſhould raiſe, methinks, a new *Spirit* of Induſtry in the *Nobility* and *Gentry* of the whole Nation, like that which *Nehemiah* inſpired the *Nobles* as well as the *People* of the *Captivity* (than which nothing ſo much reſembled that tedious *Slavery*, and *Return* from it, than did the *Reſtoration* of King *Charles* II.) *Let us ariſe up* (ſays the *brave Man*) *and build*; *and ſo they ſtrengthened their Hand*, *for the People had a Mind to the Work*. And ſuch an univerſal *Spirit* and *Reſolution* to fall to *planting*, for the repairing of our *wooden Walls* and *Caſtles*, as well as of our *Eſtates*, ſhould truly *animate* us: *Let us ariſe then and plant*, and not give it over till we have repaired the Havock our barbarous Enemies have made: Pardon then this *Zeal*, O ye *Lovers* of your *Country*,

Nehem. *c.* ii, iv. *v.* 18.

try, if it have *tranſported* me! To you *Princes*, *Dukes*, *Earls*, *Lords*, *Knights* and *Gentlemen*, noble *Patriots* (as moſt concerned) I ſpeak, to encourage and animate a *Work* ſo glorious, ſo neceſſary: A *Spirit* like this was *that* which ſo univerſally excited, and ſet forward the *Repair* of the decay'd *Peer* at *Dover*, built of *Timber*; Gentlemen and Perſons of all Degrees ſetting their Hand to it, with a wonderful and unanimous Zeal and Alacrity, as it is deſcribed by our honeſt *Hollingſhed*, in the Reign of Q. *Elizabeth*. And what has been done of later Date, in order to the Improvement of their *Eſtates*, and *Ornament* of their *Seats*, we have already ſhewed, leading the Way to thoſe noble and honourable Attempts, the Fruit of their Hands and Induſtry, in ſo few Years, already beginning to exalt their ſtately *Heads* about their *Eſtates* and *Dwellings*.

To continue this then, let none be diſcouraged who have any generous Regard to the Good of their *Country* and *Poſterity*: Let us hear the *Heſſian Bard*:

[a] *When either* barren Sands *have kill'd the* Trees,
Or diligent Hewers *fell'd them by Degrees*;
Then, leſt the Earth *ſhould waſte, and bare remain,*
They ſcatter Seeds, *and leave them on the* Plain:
Hence to proceed, young ſtalkleſs Leaves *you'll find,*
Next ſlender Stems, *which with a ſtronger* Rind
Inveſted, riſe to Trees: *Of theſe is made*
A youthful Grove, *yielding a lovely* Shade;
Until, at laſt, their ſtately Heads they rear,
And tall (as thoſe which they ſucceed) appear,
Ready again the Workmens Tools *to mar.*
This various Culture, *by the* Germans *taught,*
Moſt other Nations into Uſe have brought:
Such is the Love of Groves, *that with Delight,*
Or ample Profit may the Pains requite.

Having before celebrated and deſcribed the famous *Foreſt* about *Norinberg*:

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[a] Cum vel arena ſiti ſterilis confecit iniquâ
Vel labor excidit diuturnus & arida facta eſt
Planities, tum ne jaceant loca vaſta reciſis,
Arboribus novâ conficiunt, & ſemina mittunt
Sparſa ſolo vacuo, campiſque injecta relinquunt:
Tum videas prodire novas ſine ſtipite frondes,
Mox quoque cauliculos tenues, tum cortice robur
Ad naſci, parvoſque umbram defendere ramos
Exiguam, teneramque novo de germine Silvam
Surgere, & in patrias paulatim adoleſcere formas;
Donec in antiquum redeat decus, altâque cœlo
Attollat Capita, & concuſſo vertice nutet
Laſſatura iterum patrias jam Silva ſecures,
Has aliæ innumeræ per tot jam ſecula, terræ
Reſcivere artes reparandarum ſilvarum.
Inventrix docuit *Germania*, tanta cupido eſt,
Tantus amor Nemorum, quorum vel blanda Voluptus,
Vel gravis utilitas ſit reſponſura labori.

A DISCOURSE

* German *Miles in* England 20.

[b] *A* Wood *with kind Embraces, five* * *Miles wide,*
Encompaſſes the Town *on every ſide,*
No whit inferior to th' Hercinian *Grove,*
Whether you Profit moſt, or Pleaſure love.

Colerus Oecon. Lib. viii. Cap. i, xi.

Of which noble *Foreſt* and *Privileges* ſuch Care has been taken by many * *Emperors*, that the very *Models* of the *Plows* are ſtill preſerved, drawn by above an *hundred Horſe*, when two hundred Years ſince this *Royal Plantation* was begun, wiſely preſaging what *Ravage* might be made by the Spoil which the *Wars* have ſince cauſed in that goodly *Country*; which being then an almoſt *continual Foreſt*, is now ſo ſadly waſted. Nor has this been the Fate of *Germany* alone, but of all the moſt flouriſhing Parts of *Europe*, through the execrable and unſatiable *Ambition* of thoſe who have been the Occaſion of the Ruin not only of theſe *venerable Shades*, ſtately *Trees* and *Avenues* (the graceful Ornaments of the moſt princely Seats) but of the miſerable Deſolation of entire *Provinces*, which their *Legions* have left, with the *Murders* of ſo many *Chriſtians*, inhumanly, and without Diſtinction or juſt Provocation! *Miſchiefs* not to be repaired in many *Ages*, the *truculent* and ſavage *Marks* (among others) of a moſt *Chriſtian King*, *Nomine non Re!* In the mean Time, what Proviſion this *Demoliſher* of *Woods* in other Countries makes to furniſh and ſtore his *own* Dominions with ſo neceſſary a *Material*, we have mentioned in this *Chapter*; and how impolitick a Waſte there was of *Timber* in *France* in *John Bodin*'s Time, ſee *Repub. Lib.* vi. *Cap.* i.

But (leaving this ſad and melancholy Proſpect) I return to *Foreign* Deſcriptions (the Effects of *Peace*) and it ſhall be that Plantation of *Elms*, carried out of *England* by *Philip* the Second of *Spain*, to adorn his *Royal Palace* at *Aranjuez* (of which I have already ſpoken, *Cap.* iv. *Lib.* i.) near *Madrid* in *Spain*: The *Palace* is ſeated on the Bank of the famous River *Tagus*, and the Plantation on the *North*, where there is a Piece of Ground incloſed, formed into Walks of ſix hundred and eighty *Yards* long, and three hundred in Breadth, in Shape of a *Trapezium* or *Parallelogram*, about which the *Tago* is artificially drawn to fence it. Next the River-ſide are more *Walks*, not above twenty Foot in Breadth (for cloſer Shade) planted on each Side with double Ranks of *Elm*, ſome of which are forty *Yards* high, ſtript up to the Top, and ſo near ſet as fifteen Foot ſpace: The ſecond Row is about ſix Foot diſtant from the other; not planted exactly againſt its uſual Oppoſite, but the *Interval* and Space through which

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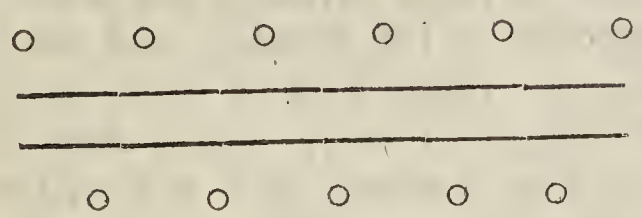
[b] Circuit incluſam pulchris amplexibus Urbem
Silva patens paſſum per millia quinque receſſu
Interiore ſui, vel paulo plura, nec ulli
Herciniæ nemorum cedens, ſi commoda ſpectes;
Aut etiam quæ Silvarum ſolet eſſe Voluptas.
Te juvet, atque animi tantum oblectamina quæras.

glides

glides a narrow ſhallow *Channel* of *Water*, to refreſh the Trees upon occaſion; thus,



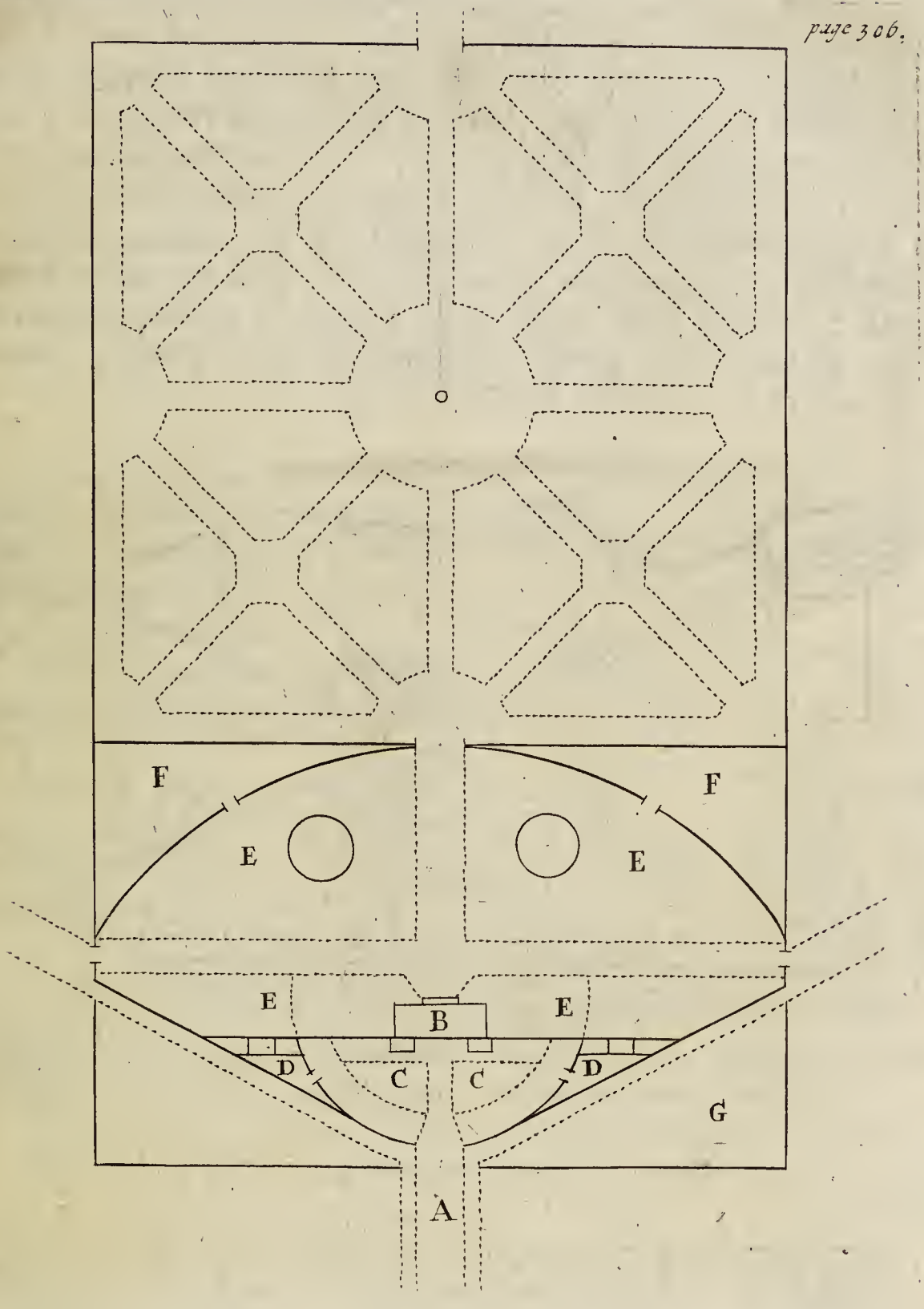
Which is the Method uſed in many *Ridings* of *Elm*-walks, ſome of which are a *League* in Length, adorning this *Seat* beyond any *Palace* (ſome think) in the World. Many of theſe indeed are on the *Decay*, prejudiced by their being planted ſo near one another: But for all that, it takes not much from the Beauty of the *Viſta*, which is certainly the moſt ſurprizingly agreeable; to which the ample *Fountain*, and noble *Statues* in the *Croſs-Walks*, make ſo glorious an Addition, as would require a particular Deſcription.

And now do I not for all this ſo magnify it, as if not to be *parallel'd* in our own Country; where, I dare affirm, are many exceed it, both in *Form* and *Planting* (which has there ſeveral Defects) but as we ſaid, for an *exotick* Example, ſo admired and celebrated by that boaſting Nation, as if the *Univerſe* could not ſhew the like.

And what, in the mean Time, can be more delightful, than for noble Perſons to adorn their goodly *Manſions* and *Demeſnes* with Trees of *venerable Shade*, and profitable *Timber*? By all the Rules and Methods imaginable, to *cut* and diſpoſe thoſe ampler Incloſures into *Lawns* and *Ridings* for Exerciſe, Health and Proſpect, and for which I ſhould here preſume to furniſh ſome farther Directions, were it not already done to my Hand by the often-cited Mr. *Cooke*, in that uſeful Work of his; where, in *Chapter* the 38*th*, he has laid down all that I can conceive neceſſary, by *Meaſures* exactly taken from the *middle Line* of any *Front*, following the *Centre-ſtake*, if it be for a *Walk*: He there determines the *Wideneſs* of the *Walk*, according to its *Length*, as forty Foot to one of half a Mile; if more, fifty or ſixty; and if you withal deſire *Shade*, that then you ſhould make three *Walks*, the two *Collaterals* twenty *Foot* broad, to a middle one of forty, twenty-five to fifty, ſo that the Middle be as wide as both the other: He likewiſe ſhews how proper it is that *Walks* ſhould not terminate abruptly, but rather in ſome capacious or pretty Figure, be it *Circle*, *Oval*, *Semi-circle*, *Triangle* or *Square*, eſpecially in *Parks*, or where they do not lead into other *Walks*; and even in that Caſe, that there may gracefully be a *Circle* to receive them: There he ſhews how to pierce a *Walk* through the thickeſt *Wood*, either by *Stakes* ſet up where they may be ſeen to direct, or by *Candle* and *Lanthorn* in a calm Night, &c. He alſo gives the *Diſtances* of the *Trees* in relation to each other, according to the *Species*, and ſhews how neceſſary it is to plant them nearer in thoſe *Ovals*, *Circles* and *Squares*, &c. for the better Diſtinction of the *Figures*, ſuppoſe to half the Diſtance of that of the *Walks*, and proportionable to the Amplitude or Smallneſs thereof. As for *Lawns*, he adviſes that they ſhould (if poſſible) be contrived on the *South* or *Eaſt* Side of the *Seat* or *Manſion*, for avoiding the Impetuouſneſs of *Weſtern* Winds; and that your beſt *Rooms* may *front* thoſe *Lawns* and Openings, and to skreen from the *Occidetal* and Afternoon's *Sun*, which alſo hinders *Proſpect*: A *Lawn* on the *North*, expoſes

Book III. expoſes the *Houſe* to that piercing Quarter, and therefore it would be well defended with the talleſt *Trees*: For the Figure he commends the *Square*, with three *Avenues* breaking out at the three *Angles*, or one at the *Angle* oppoſite to the *Houſe*; and theſe *Lawns* may be bounded with *Walks*, or a ſingle Row of *Lime-trees* at competent Diſtance: To which I add, the *Circle*, with a *Star* of *Walks* radiating from it, likewiſe exceeding pleaſant; ſuch as the Right Honourable the *Earl* of *Winchelſea* has cut out at his noble Seat in *Kent*; and ſince (far exceeding the moſt) at *Long-Leats*, the ſtately *Palace* of the *Lord Viſcount Weymouth*; at *Badminton*, the *Duke* of *Beaufort*'s princely Seat in *Glouceſterſhire*; at *Ackdowne-Park* in *Berks*, a moſt delightful Solitude, from the *Centre* of a large *Wood* belonging to the Lord *Craven*; and in *Worceſterſhire* at *Weſtwood*, the *Manſion* of Sir *John Packington*; beſides thoſe mentioned by Dr. *Plot* in his *Nat. Hiſt.* of *Staffordſhire*, with many others; moſt of which have been *graphically* plotted and deſigned (together with the *Seats*, *Gardens*, *Fountains*, *Piſcinas*, *Plantations*, *Avenues*, *Viſtas* and *Proſpects* about them) by Mr. *Kniff*, in near an *hundred Copper-Plates*: A moſt *laudable* Undertaking, and becoming the Encouragement of thoſe noble Perſons, who would do Honour to themſelves, their Family, and whole Nation. By theſe, and the like Examples, Gentlemen (Lovers of Improvements) may learn how to contrive and adapt a *Square*, *Oblong*, *Regular* or *Irregular Figure*, according as their *Woods*, *Groves* and *Parks* are diſpoſed, and lie proper for *Avenues* and *Viſtas*, radiating from their Seats in the Country; ſuch eſpecially as are ſituated in ſpacious *Flats*, or gentle *Declivities*. For Inſtance, ſuppoſe a large and ſpacious Square, contiguous to the *Gardens*, or ſome *Paſture-Fields* before it (not here ſet out) were divided into ſeveral Quarters, ſeparated only by Walks and Ranks of Trees, and if need be, incloſed with low Hedges of *Holly*, *Yew*, or other hardy *Greens*: The Trees and Walks planted at competent Diſtance with *Foreſt-trees*, unmixt; that is, what were planted with *Oak*, ſhould be ſet throughout with *Oak*; *Elm* with *Elm*, and ſo of the reſt: That the Walks which lead to or from the Front of the *Houſe*, be one hundred, or one hundred and fifty Foot in Breadth, others ſixty, fifty, *&c.* in Proportion to the Length, and the Diſtance of the Trees as the *Species* require. But this is not ſo eaſily at firſt diſcerned by ſuch as, being deſirous of *ſpeedy Shade* and *Ornament*, plant their Trees too near one another, which is a general Error. Thus much concerning the *Walks* and *Viſtas*. The *Vacuities*, which are *ſixteen* blunt *Triangles*, and conſidered as pretty large Fields, may be ſtored with ſeveral ſorts of good *Timber-trees*, *Oak*, *Elm*, *Aſh*, *Walnut*, *Beech*, *Cheſnut*, *Lime*, *Service*, *Maple*, *Black-Cherry*, *Fir*, *Pines*, *&c.* ſome of them plowed for *Corn*, and left for *Meadow* and *Paſture*, *Cyder*, *Cherry*, and other *Ortyard-fruit*, than which nothing could be more profitable and graceful.

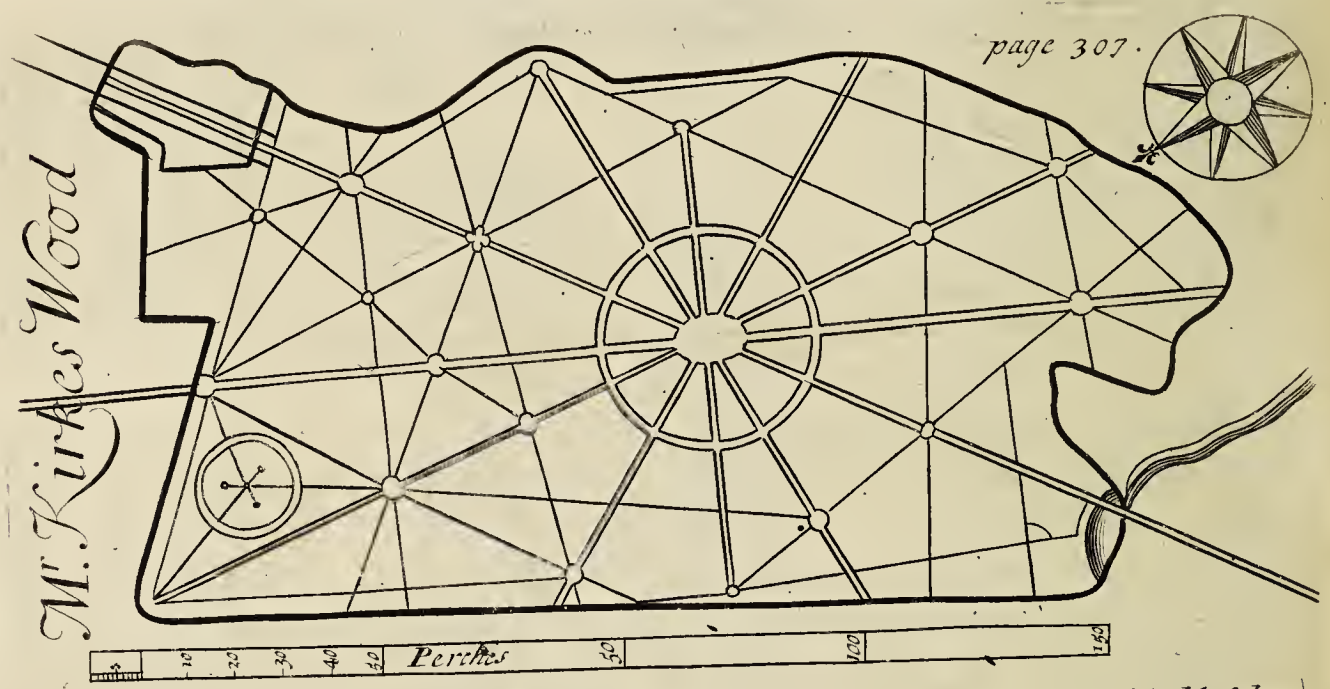
page 306.



A, *The Principal* Avenue.
B, *The* Houſe.
C, *The* Court *before it.*
D, *Place for* Stables, *and other* Offices.
E, Gardens *and* Fountain.
F, *Hortyards* and *Fruit*, &c.
G, *Paſture.*

I have omitted the *Baſſe-Court*, which may be added to the half Circle *C* ; nor have I given the Dimenſions of any the Separations or neceſſary *Buildings* ; intending this as an *Idea* only of ſomething which I conceive might be both convenient and graceful, or to be varied into other *Figures*, according to the Pleaſure of the *Owner*. The black Lines are *Walks* ; the pointed, Ranks of *Trees* and *Walks.*

And for an Inſtance of irregular *Figures*, actually ſurveyed and diſpoſed into *Walks*, the following *Plot* is preſented to me by the ingenious 'Squire *Kirk*, ſet out in a large *Wood* of his (called *Moſely*) near his Houſe at *Cookeridge* (betwixt *Leeds* and *Otely*) in *Yorkſhire*; the whole containing Sixſcore *Acres*: Nor are ſuch *Glades* through *Coppices* to be neglected, in ſome Regard preferable to the Woods of taller Trees, obnoxious to be ſubverted by impetuous Storms, which the humbler *Coppices* eſcape, and yet let in very noble Views and Proſpects; beſides their inviting of *Game* for *Breed*, and to ſhelter *ſonorous Birds*, which never are found in *lofty* Woods, where they are expoſed to *Hawks* and *Owles*.



The lines in this Platforme repreſents the Walkes in M.r Kirkes Wood (calld Moſeleys) neare his House at Cookeridge, (betwixt Leeds and Otley) in York-Shire. The whole containing about Six Score Akers.
The Double line Walks are about 20 Foot wide. and ye Single lines about 8. Foot wide.

Total of the Views	8	18	140	10	60	7	32	9	10	12	306
Number of Centers	4	6	35	2	10	1	4	1	1	1	65
Views.	2	3	4	5	6	7	8	9	10	12	*Sum*

This Table shews in the first Collumne the Number of Views in each Center, in the Second Collumne ye Number of Centers, and in ye third ye total Number of all the Views.

And here ſhould I ſhut up this *Section*, were I not moſt advantagiouſly as well as obligingly prevented, by the *Improvemnt* following (ſent me from the Reverend Mr. *Walker*) to ſhew how *Foreſt-trees* may be planted in Conſort with *Fruit-trees*, at once anſwering both *Profit* and *Pleaſure*: Take it as himſelf deſcribes it, which cannot be better.

2

'In

'In open *Fields*, where a Man happens to have only ſingle broad *Lands* or *Leys* lying by themſelves, or only two or three lying together, in every ſuch Place he may ſet a Row of Trees near the Middle, every ſecond Tree being a *Fruit-tree*, and the reſt *Foreſt-trees*: Or, on narrow Pieces never likely to be *plowed* (as on *Meadow-ground*, *Hades*, &c.) betwixt two *Fruit-trees* may be ſet two or more *Foreſt-trees*, in a Line croſſing the Row of *Fruit-trees*, as in *Fig.* V. On *Arable* Ground he may make *Balks*, which may be mowed, and Trees may be ſet on them. If upon *Balks* 4 Foot broad, *Fruit-trees* be ſet 4 Pole, or 22 Yards, aſunder, and one *Foreſt-tree* be ſet betwixt every two *Fruit-trees*, then for every *Acre* of Ground left unplowed, there may be 160 *Fruit-trees*, and 160 *Foreſt-trees*.

'Some think the loſs of Ground in making Holes for *Trees* and *Tumps*, to be more than really it is: For, if a *Mark* be paid yearly for an *Acre*, this comes to no more than one *Penny* for a ſquare Pole, which is 30 ſquare Yards and $\frac{1}{4}$; and he that pays 20 *s.* for an *Acre*, has 20 ſquare Yards for 1 *d.*

'In *Cloſes*, or on broad Pieces of Ground in *open Fields*, Trees may be planted in ſome of the Orders deſcribed in the 4 firſt *Figures* following.

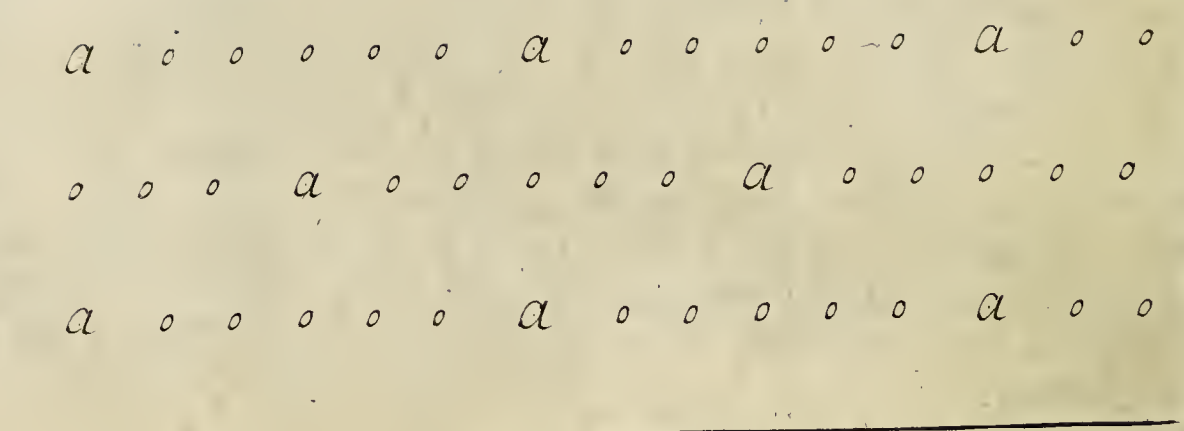
'In theſe *Figures* each Letter repreſents a Tree, *viz. a a a*, *Fruit-trees*, 30 Yards aſunder in *equilateral Triangles*; and *o o*, *Foreſt-trees*. In the 1*ſt Fig.* the Rows are 15 Yards aſunder, the *Fruit-trees* in the ſame Row 52 Yards aſunder, the *Foreſt-trees* 8 Yards aſunder, and 10 Yards from the neareſt *Fruit-trees*. Theſe *Foreſt-trees* may be often pruned up to the Top: The Rows may run the ſame way that the *Lands* or *Leys* ſhoot. In every *Acre* about 6 *Fruit-trees*, and 30 *Foreſt-trees* may be thus planted; or the Diſtance may be more or leſs, as the *Planter* thinks fit.

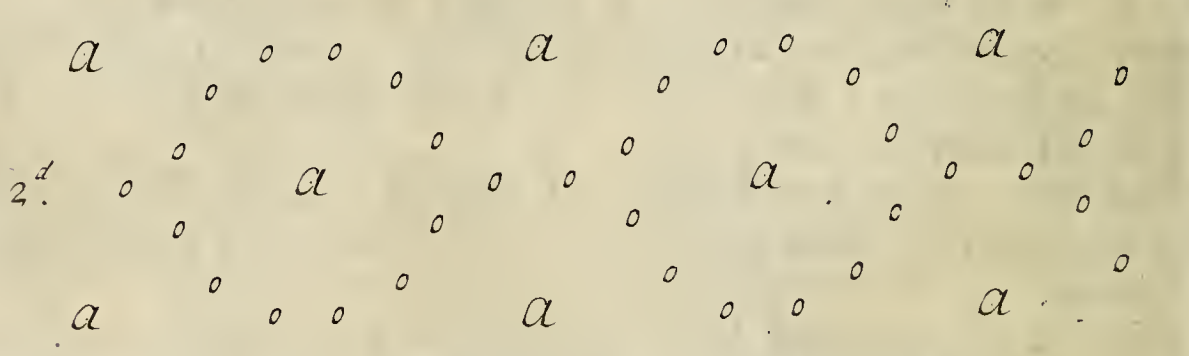
'In Places never likely to be *plowed*, Trees may be ſet as in the 2*d* or 3*d Fig.* In the 2*d Fig.* betwixt 3 *Fruit-trees* are ſet 3 *Foreſt-trees* 8 Yards aſunder, and 15 Yards and $\frac{1}{2}$ from each *Fruit-tree*. A *Fruit-tree* has 12 *Foreſt-trees* round about it. About 6 *Fruit-trees*, and 36 *Foreſt-trees* may be thus ſet in one *Acre*.

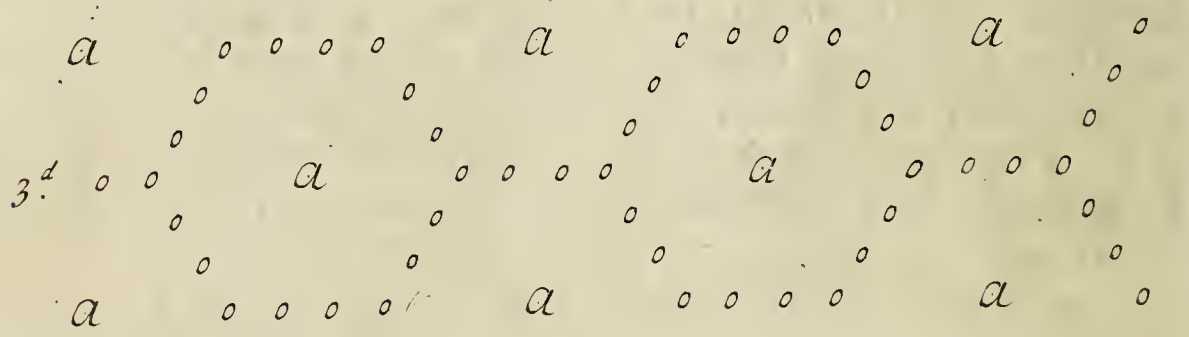
'In the 3*d Fig.* betwixt 3 *Fruit-trees* are ſet 4 *Foreſt-trees*, 17 Foot and $\frac{1}{3}$ aſunder. Here round about a *Fruit-tree* ſtand 18 *Foreſt-trees*, deſcribing the Figure of a *Hexagon*, like one of the Holes in a *Honey-comb*. In each *Acre*, about 6 *Fruit-trees*, and 48 *Foreſt-trees* may be thus ſet.

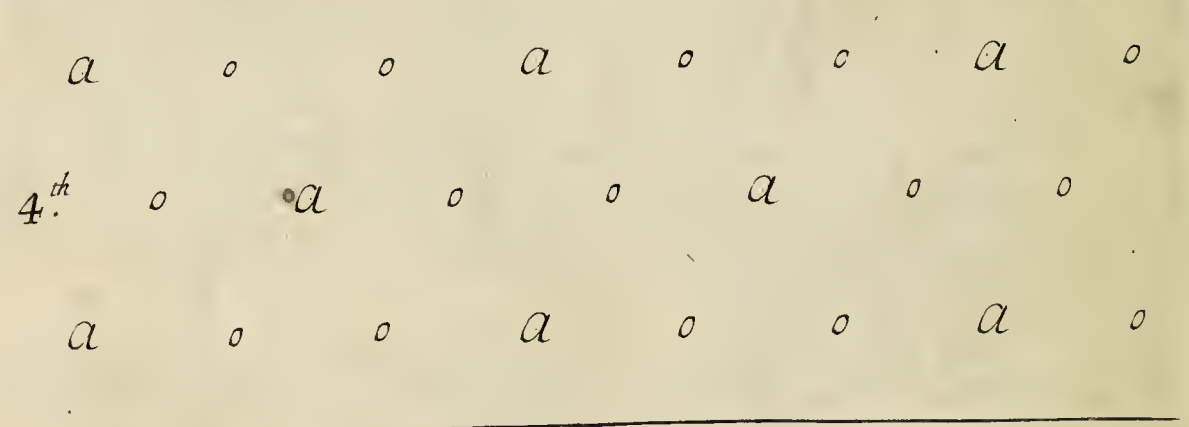
'In the 4*th Fig.* all the Trees are 17 Yards and $\frac{1}{3}$ aſunder: Betwixt 3 *Fruit-trees* ſtands 1 *Foreſt-tree*. In each *Acre* about 6 *Fruit-trees*, and 12 *Foreſt-trees* may be ſet thus.

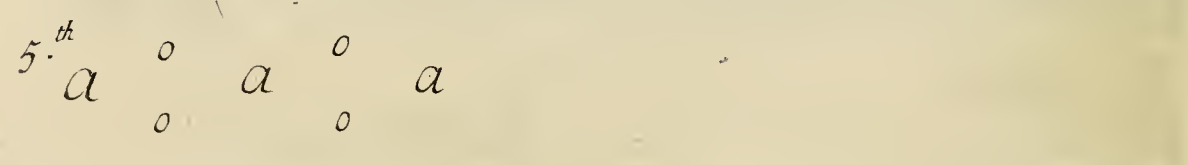
Fig: 1.











And now to encourage this, *Gentlemen* may not only lawfully plant Trees upon their own *Demeſnes*, but in *Commons* alſo, and *open Fields*, in ſpacious Rows, or otherwiſe; provided they ſet them ſo far from other Mens Grounds, as that their Boughs hang not over them (as we have ſhewed was both by the *Imperial* and our own *Conſtitution* prohibited) or no nearer one another (in *Arable Land*) than ſuch Trees are uſually ſet in Grounds incloſed; that is, ſo as not to hinder the *Plough*. Such Trees, if of *Fruit*, ſo diſpoſed and ſet, belong intirely to the *Planter* (*Tythes* excepted) without that the *Commoner* can challenge any Part thereof.

It would therefore be a moſt *charitable* Work, to plant *Fruit* and *Foreſt-trees*, for the Benefit of the *Poor*, upon *Commons* and other waſte Grounds, and ſuch Places where they would thrive; and where Perſons are willing to give Money to be thus employed for the Uſe of the Indigent, among the ſundry Ways of diſpoſing of it to that End, as in the *Figures* above deſcribed.

16. But theſe incomparable *Amenities* and Undertakings, will beſt of all become the *Inſpection* and Care of the noble *Owners*, *Lieutenants*, *Rangers*, and ingenious *Gentlemen*, when they delight themſelves as much in the Goodlineſs of their *Trees*, as other Men generally do in their *Dogs* and *Horſes*, for *Races* and *Hunting*; neither of which *Recreations* is comparable to that of *Planting*, either for Virtue or Pleaſure, were Things juſtly conſidered according to their true Eſtimation: Not that I am of ſo moroſe a Humour, that I reprove any of theſe noble and manly Diverſions, ſeaſonably uſed; but becauſe I would court the Induſtry of great and opulent Perſons, to profitable and permanent *Delights*: For, ſuppoſe that Ambition were changed into a laudable Emulation, who ſhould beſt, and with moſt Artifice, raiſe a *Plantation* of *Trees*, that ſhould have all the proper Ornaments and Perfections their Nature is ſuſceptible of, by their Direction and Encouragement; ſuch as *Ælian* ſums up, *Lib.* iii. *Cap.* xiv. εὐγενεῖς οἱ κλάδοι, καὶ ἡ κόμη πολλὴ, *&c.* kind and gentle *Limbs*, plenty of *large Leaves*, an ample and fair *Body*, profound, or ſpreading *Roots*, ſtrong againſt impetuous Winds (for ſo I affect to read it) extenſive and venerable *Shade*, and the like: Methinks there were as much a Subject of *Glory* as could be fancied of the Kind; and *comparable*, I durſt pronounce *preferable*, to any of their Recreations; and how goodly an Ornament to their *Demeſnes* and *Dwellings*, let their own *Eyes* be the Judges.

17. One *Encouragement* more I would reinforce from an *Hiſtory* I have read, of a certain frugal and moſt induſtrious *Italian Nobleman*, who, after his *Lady* was brought to Bed of a *Daughter* (conſidering that *Wood* and *Timber* was a Revenue coming on whilſt the *Owners* were aſleep) commanded his Servants immediately to plant in his *Lands* (which were ample) *Oaks*, *Aſhes*, and other profitable and marketable Trees, to the Number of an *hundred Thouſand*; as undoubtedly calculating, that each of thoſe Trees might be worth *twenty Pence*, before his *Daughter* became *marriageable*, which would amount to 100000 *Francs* (which is near *ten Thouſand Pounds Sterling*) intended to be given with his *Daughter* for a *Portion*. This was good *Philoſophy*, and ſuch as I am aſſured was frequently practiſed in *Flanders* upon the very ſame Account: Let us ſee it once take effect amongſt our many ſlothful *Gentry*, who have certainly as large *Demeſnes*, and yet are ſo deficient in that decent Point of timely providing for their nu-

merous *Children*: And thoſe who have none, let them the rather Plant: *Trees* and *Vegetables* have perpetuated ſome *Names* longer and better than a *Pedigree* of a numerous *Off-ſpring* (as I have already ſhewed;) and it were a *Pledge* of a noble Mind, to oblige the future *Age* by our particular Induſtry, and by a long laſting Train, with the living Work of our own Hands. But I now proceed to more general *Concerns*, in order to the *Quæries*, and firſt to the *Proportion*.

18. It were but juſt, and infinitely befitting the miſerable *Needs* of the whole *Nation*, that every twenty *Acres* of Paſture made an Allowance for half an *Acre* of Timber; the Ground dug about *Chriſtmas*, caſting the *Graſſy-ſide* downwards till *June*, then dug again, and about *November* ſtirred afreſh, and ſown with *Maſt*, or planted in a *Clump*, well preſerved and *fenced* for fourteen or fifteen Years; unleſs that *Sheep* might haply *graze* after four or five Years: And where the young *Trees* ſtand too thick, there to *draw* and *tranſplant* them in the *Hedge-rows*, which would alſo prove excellent *Shelter* for the *Cattle*: This *Husbandry* would more eſpecially become *Northamptonſhire*, *Lincolnſhire*, *Cornwal*, and ſuch other of our *Countries* as are the moſt naked of *Timber*, *Fuel*, *&c.* and unprovided of *Covert*: For it is rightly obſerved, that the moſt *fruitful Places* leaſt abound in *Wood*, and do moſt ſtand in *need* of it.

1.

Example by Leiceſterſhire;
What Soil can be better than that
For any Thing Heart can deſire?
And yet doth it want ye ſee what,
Maſt, Covert, cloſe Paſture, and Wood,
And other Things needful, as good.

2.

More plenty of Mutton and Beef,
Corn, Butter and Cheeſe of the beſt,
More Wealth any where (to be brief)
More People, more handſome, and preſt,
Where find ye (go ſearch any Coaſt)
Than there where Incloſure is moſt?

3.

More Work for the labouring Man,
As well in the Town as the Field;
Or thereof (deviſe, if ye can)
More Profit what Countries do yield?
More ſeldom where ſee ye the Poor
Go Begging from Door to Door?

4.

In Wood-Land the poor Men that have
Scarce fully two Acres of Land,
More merrily live, and do ſave
Than t'other with twenty in Hand:
Yet pay they as much for the two
As t'other for twenty muſt do.
If this ſame be true, as it is,
Why gather they nothing by this?

Thus

Thus honeſt *Tuſſer*, above an hundred Years ſince, and the whole Age has juſtified it; ſince 'tis evident, that by *Incloſure*, and this diligent *Culture*, the very worſt Land of *England* would yield ten-fold more Profit, than that which is here celebratad for the beſt and richeſt Spot of it.

19. Such as are ready to tell ye their *Lands* are ſo *wet*, that their *Woods* do not thrive in them, let them be converted to *Paſture*; or beſtow the ſame Induſtry on them which good *Husbands* do in *Meadows* by *draining*; which inſtead of thoſe narrow *Rills* (and *Gutters* rather) might be reduced to a proportionable *Canal*, cut even and ſtrait; the *Earth* taken out, ſpread upon the weeping and *uliginous* Places: Nor would the Charge be ſo much, as that of the yearly and perpetual renewing and cleanſing of thoſe numerous and irregular *Sluices*; beſide the *Profit* of ſtoring the *Canal* with *Fiſh*.

It is a Slothfulneſs to do otherwiſe, ſince it might be effected in few Years, by continually, and by Degrees making the *middle Cut* large, where it cannot be ſo conveniently done at *once*, and the Pains would certainly be as fully recompenced in the Growth of their *Timber*, as in that of their *Graſs*: Where poor hungry *Woods* grow, rich *Corn*, and good *Cattle* would be more plentifully bred; and it were beneficial to convert ſome *Wood-land* (where the proper Virtue is exhauſted) to *Paſture* and *Tillage*; provided that freſh *Land* were improved alſo to *Wood* in recompence, and to balance the other.

20. Where we find ſuch *uliginous* and ſtarved Places (which ſometimes obey no Art or Induſtry to *drain*, and of which our pale and fading *Corn* is a ſure Indication) we are as it were courted to obey *Nature*, and improve them from the Propagation of *Sallows*, *Willows*, *Alders*, *Abele*, *Black-Cherry*, *Sycomore*, *Aſpene*, *Birch*, and the like haſty and profitable Growers, by ranging them, caſting of *Ditches*, *Trenches*, *&c.* as before has been taught.

21. In the mean while, 'tis a Thing to be deplored, that ſome Perſons beſtow more in *grubbing*, and dreſſing a few *Acres*, which have been excellent *Wood*, to convert them into wretched *Paſture*, not worth a Quarter of what the *Trees* would have yielded, well ordered, and left ſtanding; ſince it is certain, that *barren Land* planted with *Wood*, will trebble the Expence in a ſhort Time. Of this, the Right Honourable the Lord *Viſcount Scudamore* may give fair Proof, who having *fell'd* (as I am credibly informed) a decayed *Wood*, intended to be *ſet* to *Tenants*; but upon ſecond Thoughts (and for that his *Lordſhip* ſaw it apt to caſt Wood) incloſed and preſerved; it yielded him, before thirty Years were expired, near 1000 *l.* upon *Wood-falls*; whereas the utmoſt *Rent* of the whole Price of *Land* yearly, was not above 8 *l.* 10 *s.* The like I am able to confirm by inſtancing a *noble Perſon*, who (a little before our unhappy *Wars*) having ſown three or four *Acres* with *Acorns*, the fourth Year *tranſplanted* them, which grew too thick all about his *Lordſhip*: Theſe Trees are now of that *Stature*, and ſo likely to prove excellent *Timber*, that they are already judged to be almoſt as much worth as the whole *Demeſnes*; and yet they take off nothing from other *Profits*, having been diſcreetly diſpoſed of at the firſt *Deſignment*. And ſuppoſing the *Longævity* of *Trees* ſhould not extend to the *Periods* we have (upon ſo good Account) produced; yet, neither is their arrival to a very competent *Perfection*, ſo very diſcouraging; ſince I am credibly informed, that ſeveral Perſons

have

Book III. have *built* of *Timber* (and that of *Oak*) which were *Acorns* within this *forty Years*; and I find it credibly reported, that even our famous *Foreſt* of *Deane*, hath been utterly *waſted* no leſs than *three* ſeveral times, within the Space of *nine hundred Years*. The Prince *Elector*, *Frederic* IV. in the Year 1606. ſowed a Part of that moſt barren *Heath* of *Lambertheim* with *Acorns* after *plowing*, as I have been informed: It is now likely to prové a moſt goodly *Foreſt*, though all this while miſerably neglected by reaſon of the Wars. For the Care of *planting Trees* ſhould indeed be recommended to *Princes* and *great Perſons*, who have the *Fee* of the *Eſtate*; *Tenants* upon the *Rack*, by reaſon of the tedious Expectation, and Jealouſy of having their *Rents* enhanced, are, for the moſt part, averſe from this *Husbandry*; ſo that unleſs the *Landlord* will be at the whole Charge of *planting* and *fencing* (without which as good no *planting*) little is to be expected; and whatſoever is propoſed to them above their uſual Courſe, is looked upon as the *Whim* and Fancy of *ſpeculative* Perſons, which they turn into *Ridicule* when they are applied to *Action*; and *this* (ſays an ingenious and excellent *Husband*, whoſe *Obſervations* have afforded me no little Treaſure) might be the Reaſon, why the prime *Writers* of all Ages endeavoured to involve their *Diſcourſes* with *Allegories*, and *Ænigmatical* Terms, to protect them from the Contempt and Pollution of the *Vulgar*, which has been of ſome ill Conſequence in *Husbandry*; for that very few *Writers* of Worth, have adventured upon ſo plain a Subject; though doubtleſs to any conſidering Perſon, the moſt delightful Kind of *Natural Philoſophy*, and that which employs the moſt uſeful Part of the *Mathematicks*.

The Right Honourable the late Lord *Viſcount Mountague* has planted many thouſands of *Oaks*, which, I am told, he drew out of *Coppices*, big enough to defend themſelves; and that with ſuch Succeſs, as has exceedingly improved his *Poſſeſſions*; and it is a worthy *Example*. To conclude, I could have ſhewn an *Avenue* planted to a Houſe ſtanding in a barren *Park*, the Soil a cold *Clay*; it conſiſted totally of *Oaks*, one hundred in Number: The Perſon who firſt ſet them (dying very lately) lived to ſee them ſpread their *Branches* 123 Foot in Compaſs, which, at Diſtance of 24 Foot, mingling their ſhady *Treſſes* for above 1000 in Length, formed themſelves into one of the moſt venerable and ſtately *Arbor-walks* that in my Life I ever beheld: This was at *Baynards* in *Surrey*, and belonging lately to my moſt honoured Brother (a moſt induſtrious *Planter* of Wood) *Richard Evelyn*, Eſq; ſince tranſplanted to a better World: The Walk is 56 Foot broad, and one Tree with another containing, by Eſtimation, *three Quarters* of a *Load* of *Timber* in each *Tree*, and in their *Lops* three *Cords* of *Fire-wood*: Their *Bodies* were not of the talleſt, having been *topped* when they were young, to reduce them to an uniform Height; yet was the *Timber* moſt excellent for its Scantling; and for their *Heads*, few in *England* excelling them: Where ſome of their Contemporaries were planted ſingle in the *Park* without Cumber, they ſpread above *fourſcore* Foot in *Arms*; all of them ſince cut down and deſtroyed by the *Perſon* who continued to detain the juſt Poſſeſſion of that *Eſtate* from thoſe to whom of *Right* and *Conſcience* it belonged. Since then it is diſpoſed of, I am glad it is fallen into the Hands of the preſent *Poſſeſſor*.

22. But I have ſome few Inſtances to ſuperadd, of no mean *Encouragement*, before I diſmiſs my *Reader*, becauſe they are ſo very pregnant

nant and authentick. Sir *Tho. Southwell*, after he had *ſold* and *fell'd* all the *Timber* and *Under-wood* in a certain Parcel of *Land* lying in *Carbrook*, in the County of *Norfolk*, called by the Name of *Latimer-Wood*, containing eighty *Acres* (now, as I underſtand, belonging to Sir *Rob. Clayton*, Knight) granted a *Leaſe* of the ſaid Ground, with other Land, to one *Tho. Waſtney* (the Father) with Liberty to grub and ſtub-up all the Wood and Stub-ſhoots remaining, and to clear the ſaid Ground for *Paſture* or *Tillage*, as he ſhould think to be moſt for his Profit and Advantage: Accordingly he puts out the ſame to *Labourers* to *ſtub* and *clear*; but was, it ſeems, perſuaded by one of them, to preſerve ſome of the young *Stands* or *Saplings* then growing there, as that which might be of greater Emolument to him before the Expiration of the *Leaſe*, than if he ſhould quite extirpate them, and convert the ſaid Ground to *Tillage*: Theſe *Saplings* were then ſo ſmall, as when it happened that any of the *Labourers* did break the *Haft* of his *Mattock*, he could hardly find one amongſt them, big enough to make another of for his preſent Uſe: Nay, when the ſaid *Labourers* had made an End of clearing the Ground of the old *Stub-ſhoots*, upon which the *Timber* and *Under-wood* did grow (which is now fifty Years ſince) there was not a *Tree* left growing in it, that could be valued at above *Three-pence*, to be fell'd for any Uſe or Service: About the Year 1650, the Eſtate being then come (after the Death of Sir *Rich. Crane*, Knight) to *William Crane*, Eſq; and the *Leaſe* of the ſame to *Tho. Waſtney* (the *Son*) he offered 500 of the beſt of the ſaid young *Oak-ſaplings* to one *Daniel Hall* (a Dealer in *Timber*) for *two Shillings* and *Six-pence* the *Tree*; which he refuſing to give, the ſaid *Tho. Waſtney*, making his Application to Mr. *Crane* above-mentioned (then *Owner* of the *Eſtate*) and deſiring *Daniel Hall* to acquaint him what pity it was to cut down ſuch young and thriving *Trees*; Mr. *Crane* was perſwaded to allow the ſaid *Tho. Waſtney fourſcore Pounds*, and to let them ſtand; ſince which Time, the ſaid Mr. *Crane* ſold as many of thoſe *Trees* and *Saplings*, as came to about *forty Pounds*, and left growing, and remaining on the Ground about 1380 *Trees*; which, in *Auguſt* 1675, being (upon the deſire of Mr. *Crane*) valued by the ſaid *Daniel Hall*, were eſtimated to be worth 700 *l.* himſelf ſince offering for ſome of the ſaid *Trees* 40 or 50 *Shillings* a *Tree*; 500 of them being better worth than 500 *l.* Now the ſaid *Latimer-Wood*, were it cleared of the *Timber*, would not be *let* for above *four* or *five* Shillings *per Acre* at the moſt. The Particulars of this *Hiſtory* I received under the *Hands* and *Certificates* of the above-mentioned *Daniel Hall*, who is the *Timber-Merchant*, and two of the *Stubbers* or *Labourers* (yet living) that were employed to clear the Ground. I have likewiſe tranſmitted to me this Account from Mr. *Sharp*, under the Hand of *Robert Daye*, Eſq; one of his *Majeſty's Juſtices* of the *Peace* for the *County* of *Norfolk*, as followeth.

There were in 1636, an hundred *Timber-trees* of *Oak*, growing on ſome Grounds belonging then to *Thomas Daye* of *Scopleton*, in the *County* of *Norfolk*, Eſq; which were that Year ſold to one *Rob. Bowgeon* of *Hingham*, in the ſaid *County*, for 100 *l.* which Price was believed to be equal, if not to ſurmount, their intrinſick Worth and Value; for, after Agreement made for them, a *Refuſal* happening (which continued the *Trees* ſtanding till the *Year* 1671.) thoſe very *Trees* were ſold to *Tho. Ellys* of *Windham* (*Timber-Maſter*) and one *Hen. Morley*,

Book III. *ley, Carpenter,* by Mr. *Daye* (Son of the ſaid *Thomas Daye*, Eſq;) for 560 *l.* And this comes to me atteſted under the Hand of 'Squire *Day* himſelf, dated 4 *May* 1678.

From the ſame Mr. *Sharp* I receive this Inſtance of an *Aſh* planted by the Hands of one Mr. *Edm. Salter* in that *County*, which he ſold for 40 *s.* before his Death ; but this is frequent.

I am likewiſe aſſured that three *Acres* of *barren Land*, ſown with *Acorns* about ſixty *Years* ſince, are now become a very thriving *Wood:* The Improvement of thoſe few *Acres* amounts to 300 *l.* more than the *Rent* of the *Land*, and what it was before worth to be ſold. *Once* more, and I have done.

Upon the Eſtate of *George Pitt*, Eſq; of *Stratfeildſea*, in the *County* of *Southampton*, a *Survey* of *Timber* being taken in the Year 1659, it came to 10300 *l.* beſides near 10000 *Samplers* not valued, and growing up naturally : Since this, there hath been made by ſeveral Sales 5600 *l.* and there has been fell'd for *Repairs*, *Building* and neceſſary *Uſes* to the Value (at the leaſt) of 1200 *l.* ſo as the whole Falls of *Timber* amount to 6800 *l.* The *Timber* upon the ſame Ground being again *ſurveyed Anno* 1677, appears to be worth above 21000 *l.* beſides 8 or 9000 *Samplers* and young *Trees* to be left ſtanding, and not reckoned in the *Survey :* But what is yet to be obſerved, moſt of this *Timber* above-mentioned, being *Oak*, grows in *Hedge-rows*, and ſo as that the ſtanding of it does very little Prejudice to the *Plough* or *Paſture*.

It is likewiſe affirmed, that upon a *Living* in the ſame Place, of about 40 *l. per Ann. Rent*, there was (by an *Eſtimation* taken in the Year 1653.) *three hundred thirty-eight* young *Timber-trees*, valued at 59 *l.* the *Saplings* at 31 *l.* 14 *s.* And upon a later *Survey*, taken the laſt Year 1677, the Worth of the *Timber* on that *Living* is valued at above 800 *l.* beſides four or five hundred young thriving Trees, which have, ſince the *Survey* in 1653, grown naturally up, not reckoned in this *Account*. With ſuch, and the like *Inſtances*, coming to me from *Perſons* and *Gentlemen* of unqueſtionable *Credit* (diſperſed through ſeveral other *Counties* of this *Nation*) I might furniſh a juſt *Volume* ; and I have produced theſe *Examples*, becauſe they are *conſpicuous*, full of *Encouragement*, worthy our *Imitation* ; and that from *theſe*, and ſundry others which I might enumerate, we have made this Obſervation, that almoſt any Soil is proper for ſome profitable *Timber-trees* or other, which is good for very little elſe.

23. Beſides *common Paſture*, which has long been fed, and is the very beſt *Meadow*, that is *up-land* and rich, and ſuch as we find to be naturally *Wood-ſeere* (as they term it) the Bottoms of *Downs*, and like Places well *plow'd* and *ſown*, will bear luſty *Timber*, being *broken up*, and let lie till *Midſummer*, and then *ſtirred* again before *ſowing* about *November*.

Mr. *Cooke*'s Directions are theſe : Prepare as for ſowing of *Barley*; about *February* ſcatter your *Seeds :* If you plow your Ground into great *Ridges*, the Thickneſs of the Earth on the Top will afford more Depth and Nouriſhment for the *Roots*, and the *Furrows* being filled up with Leaves, when rotten, will lead the *Roots* from one *Ridge* to another : In dry Ground plow the Ridges croſs the Deſcent, not to drain, but keep the *Water* on the Ground, but in wet Lands, contrary :

This

This I hold to be an excellent Note: He conceives the *Barley* Seaſon to be of the lateſt to ſow your *Seeds*, but with *Oats* it does well, ſo you ſow them not too thick; but 'tis beſt of all to ſow them by themſelves, without any *Crop* of *Grain* at all.

A more expeditious Way is to plant with *Sets*, making *Holes* or *Foſſes* (which are beſt) two Foot wide, and deep, and about half a *Rod* diſtant, *viz.* four in every *Rod* ſquare, two *Sets* in each Hole, ſowing your *Keys* and *Seeds* among them the enſuing *Spring*, and that continued as oft as you find *Stampings* and *Keys* to be had, even till your *Wood* be perfectly furniſhed, only taking Care that they lie not long too thick, becauſe it will heat and burn the *Kernels*; and therefore let them be put into the Ground as ſoon as they are preſſed, or elſe lay them thin, or parted with *Straw*.

In caſe your Land be poor, and wanting Depth, or but indifferent, obſerving the Poſture of your Ground, divide it into four Yards diſtance at both Extreams, by ſmall *Stakes*, making Rows of them, by ſetting up ſome few between them, to direct, and lay your Work ſtreight, ploughing one Yard of each Side of the *Stakes*, if the Ground be *Green-ſward*, for the eaſier running of the *Roots*: Having thus plowed two Yards, and left two unploughed through your whole Piece, ſome ſhort Time before planting Seaſon, ſo ſoon as the Fall of the Leaf begins, dig up the unploughed *Interſtices*, laying one half of the Earth on the unploughed Pieces, and the other half upon the reſt; and as you do this, plant your prepared *Sets* about a Yard diſtant, with Store of *Sallow* or other *Cuttings* with them, digging that Ground which you laid on the ploughed Part a good *Spade* deep, which will make it near a Foot thick to plant your Sets in: Thus proceed from one unplough'd Ground to another, till all of it is planted: Two Men on each Side of the *Ridges* will ſoon diſpatch the Work, which would be finiſhed by the latter End of *January*, which is the beſt Time for the ſowing your *Keys*, *Nuts*, and other *Seeds*, unleſs the Weather be froſty, in which Caſe you may a little defer it: And when all is ſowed, cover them a little with the Shovelings of ſome Ditches, Pond, or other Stuff, as an aſſured good Way to improve ſuch Grounds to conſiderable Advantage.

For the planting of *Walnuts*, *Cheſnuts*, *Cyder-Apples*, or any other *Foreſt* or *Fruit-trees*, in open Fields, Mr. *Cooke* directs how the *triangular* Form exceeds all the reſt for Beauty and Advantage: I refer you to his 33*d Chap.*

An old and judicious Planter of *Woods*, preſcribes us theſe *Directions*, for improving of *Sheep-walks*, *Downs*, *Heaths*, &c. Suppoſe on every ſuch *Walk*, on which five hundred *Sheep* might be kept, there were ploughed up twenty *Acres* (*plough'd* pretty *deep*, that the *Roots* might take hold, and be able to reſiſt the *Winds*) this ſhould be ſowed with *Maſt* of *Oak*, *Beech*, *Chats* of *Aſh*, *Maple-Keys*, *Sloes*, *Service-Berries*, *Nuts*, *Bullis*, &c. bruiſed *Crabs* and *Haws*, mingled and ſcattered about the Sides and Ends of the Ground, near a Yard in Breadth. On the reſt ſow no *Haws*, but ſome few *Crab-kernels*: Then begin at a *Side*, and ſow five Yards broad, plowing under the *Maſt*, &c. very ſhallow; then leave ſix Yards in Breadth, and *ſow* and *plow* five Yards more, and ſo from Side to Side, remembring to leave a Yard and half at the laſt Side; let the reſt of the *Head-lands* lie,

Book III. lie, till the Remainder of the *Close* be ſown in *March* with *Oats*, *&c.* to preſerve it from hurt of *Cattle*, and potching the Ground: When the *Spring* is of two Years Growth, draw part of it for *Quick-ſets*; and when the reſt of the *Trees* are of ſix Years *Shoot*, exhauſt it of more, and leave not above *forty* of either Side, each *Row five Yards* diſtant, and here and there a *Crab-ſtock* to *graff* on, and in the environing *Hedge* (to be left thick) let the *Trees* ſtand four Yards aſunder; which if *forty-four* were ſpared, will amount to above four thouſand *Trees*: At twenty Years end, ſtock up two thouſand of them; lop a thouſand more every ten Years, and reſerve the remaining thouſand for *Timber*: Judge what this may be worth in a ſhort Time, beſides the *Graſs*, *&c.* which will grow the firſt ſix or ſeven Years, and the Benefit of Shelter for Sheep in ill Weather, when they cannot be folded; and the *Paſture* which will be had under the *Trees*, now at eleven Yards *interval*, by reaſon of the *ſtocking* up thoſe two thouſand we mentioned, excepting the *Hedges*; and if in any of theſe Places any conſiderable *Waters* fortune to lie in their Bottoms, *Fowl* would abundantly both *breed* and harbour there. Theſe are admirable Directions for *Park-lands*, where *Shelter* and *Food* is ſcarce.

But even this *Improvement* yet does no way reach what I have met withal in the moſt accurate, and no leſs laborious Calculation of Captain *Smith* upon this very *Topic*; where he demonſtratively aſſerts, that a *thouſand Acres* of *Land*, planted at one *Foot* interval in 7201 *Rows*, taking up 51854401 *Plants* of *Oak*, *Aſh*, *Cheſnut* (or to be *ſown*) taking up 17284800 of each Sort, and fit to be *tranſplanted* at three Years Period (if ſet in good *Ground*) are worth *Eighteen-pence* the *Hundred*; and there being 345696 *Hundred*, it amounts to no leſs than 25927 *l.* 4 *s.* beſides the *Cheſnuts*, of which there being 1728480 *l.* (valued at, and worth *half* a *Crown* the *Hundred*) they come to 21606 *l.* and the *Total* of all, to 47533 *l.* 4 *s.*

This being made out, conſider what an immenſe Sum *great Trees* would amount to, and in a large Quantity of *Land*; ſuch as were worthy a *Royal* Undertaking: It is computed, that at *three Foot* diſtance, the firſt *Felling* (that is, eight or nine Years after their *planting*) would be worth in *Hoops*, *Poles*, *Firing*, *&c.* 55015 *l.* and the ſecond *Fell*, 28657 *l.* 19 *s.* 5 *d.* And the fourth (which may be about thirty-two Years from their *Semination*) 90104 *l.* 17 *s.* and ſo forward.

At *four Foot* interval, and *Felling*, according to the ſame Proportion, you may likewiſe reckon; and in eleven Years, with three Years *Crop* of *Wheat* (*ſow'd* at firſt between) it will amount to 34001 *l.* 9 *s.* 4 *d.* and the next, very much more; in regard the *Wood* will ſpring up thicker: So as at the fifth *Fell*, the Account ſtands 126992 *l.* 10 *s.* 2 *d.* *&c.* and at the ſeventh (whoever lives to it) 200000 *l.* And, if planted at wider Diſtance, *viz.* eighteen *Foot* (according to the *Captain's* Method) at thirty or forty Years Growth, you may compute them worth 192961 *l.* 6 *s.* and in ſeventy Years, 201001 *l.* beſides the three Years *Crop* of *Wheat*; in all 410312 *l.* 16 *s.* which at thirty-ſix *Foot* interval (accounted the utmoſt for *Timber*) takes up (for one thouſand *Acres*) 40401 Trees for the firſt hundred Years. Then,

To make *room*, as they grow larger, grubbing up every middle *Tree*, at 9 *l. per Tree*, 19800 *Trees* amount to 99000 *l.* and the remaining 20601 at two hundred and twenty Years growth, at but 8 *l. per Tree*, comes to 164808 *l.* beſides the inferior *Crop* of *Meadow*, or *Corn* in all this Time, ſown in the Diſtances; reckoning for three Years Product 90000 *Buſhels* at 5 *s. per Buſhel*, which will amount to 22500 *l.* beſides the *Straw*, *Chaff*, *&c.* which at 5 *s.* a *Load*, and 3 *d.* a *Buſhel Chaff*, comes to 2025 *l.* So as the total *Improvement* (beſides the 217 Years Emolument ariſing from the *Corn*, *Cattle*, *&c.*) amounts to 288333.

And theſe Trees (as well they may) coming to be worth for *Timber*, 20 *l.* an *Oak*; the twenty thouſand ſix hundred and one Trees amount to 412020 *l.* and the total Improvement of the thouſand *Acres* (the *Corn* Profits not computed) aſcends to 675833 *l.* So as admit there were in all *England* (and which his *Majeſty* might eaſily compaſs, even for his own *Proportion*, and for *Poſterity*) twenty thouſand *Acres* thus planted, at two *Foot diameter* (and, as may be preſumed, thirty *Foot* high, which in one hundred and fifty Years they might well arrive to) they would be worth 13516660 *l.* an immenſe and ſtupendous Sum, and an everlaſting Supply for all the *Uſes* both of *Sea* and *Land*. But it is to Captain *Smith*'s laborious *Works* (to which I wiſh all Encouragement) that we have the total *Charge* of this noble *Undertaking* from the firſt *Semination*, to their *Maturity*; by which it will be eaſy to compute what the *Gains* will be for any *greater* or *leſſer* Quantity.

But now to return to the Place of *Planting* (from whence this *Calculation* has more than a little diverted) we ſhall find, as we ſaid, that even in the moſt *craggy*, *uneven*, *cold* and expoſed Places, not fit for *Arable*, as in *Biſcay*, *&c.* and in our very *Peaks* of *Derbyſhire*, and other *rocky* Places, *Aſhes* grow about every *Village*, and we find that *Oak*, *Beech*, *Elm* and *Aſh* will proſper in the moſt *flinty Soils*. And it is truly from theſe *Indications*, more than from any other whatſoever, that a broken and decaying *Farmer* is to be diſtinguiſhed from a ſubſtantial *Free-holder*, the very *Trees* ſpeaking the *Conditions* of the *Maſter*. Let not then the *Royal Patrimony* bear a *Bankrupt*'s Reproach. But to deſcend yet lower.

24. Had every *Acre* but *three* or *four Trees*, and as many of *Fruit* in it as would a little adorn the *Hedge-rows*, the *Improvement* would be of fair Advantage in a few Years; for it is a Shame that *Turnip-planters* ſhould demoliſh and undo *Hedge-rows* near *London*, where the *Mounds* and *Fences* are ſtripp'd naked, to give Sun to a few miſerable *Roots*, which would thrive altogether as well under them, being skilfully *prun'd* and *lopp'd*: Our *Gardeners* will not believe me, but I know it to be true, though *Pliny* had not affirmed it: As for *Elms* (ſaith he) their *Shade* is ſo *gentle* and *benign*, that it nouriſhes whatſoever grows under it: And (*Lib.* xvii. *Cap.* xxii.) it is his Opinion of all other *Trees* (very few *excepted*) provided their *Branches* be pared away, which being diſcreetly done, improves the *Timber*, as we have already ſhewed.

Indeed where *Elms* are planted either about very ſmall *Crofts* or *Avenues* reſerved for *Paſture*, the *Roots* are apt to ſpring up and annoy the *Graſs*: But I ſpeak of the larger *Field*, and even in the former, that Part of the *Root* which ſpreads into the *Field*, may (as I have ſhewn) be hindered from infecting it, by cutting away thoſe *Fibres* which run into the *Field*, without any Impeachment to the Growth of the *Trees*; of which I have ſome whoſe *Roots* are cut off very near the main *Stems* at one Side, thriving almoſt altogether as well as thoſe which have their *Roots* entire.

25. Now let us *calculate* a little at adventure, and much within what is both *feaſible*, and very *poſſible*; and we ſhall find, that *four Fruit-trees* in each *Acre* throughout *England*, the Product ſold but at *Six-pence* the *Buſhel* (but where do we now buy them ſo *cheap*?) will be worth a *Million* yearly: What then may we reaſonably judge of *Timber*, admit but at the Growth of *four Pence per Acre* yearly (which is the loweſt that can be eſtimated) it amounting to near half a *Million*? if (as 'tis ſuppoſed) there may be *five* or *ſix* and *twenty Millions* of *ſquare Acres* in the *Kingdom* (beſides *Fens*, *High-ways*, *Rivers*, *&c.* not counted) and without reckoning *in* the *Maſt*, or *Loppings*; which whoſoever ſhall *calculate* from the annual *Revenue*, the *Maſt* only of *Weſtphalia* (a ſmall and wretched Country in *Germany*) does yield to that *Prince*, will conclude to be no deſpicable *Improvement*.

26. In this poor *Territory*, every *Farmer* does by antient *Cuſtom* plant ſo many *Oaks* about his *Farm*, as may ſuffice to feed his *Swine*. To effect this, they have been ſo careful, that when of late Years the *Armies* infeſted the poor *Country*, both *Imperialiſts*, and *Proteſtants*; the only *Biſhoprick* of *Munſter* was able to pay *One hundred thouſand Crowns per Menſem* (which amounts of our *Money* to about 25000 *l. Sterling*) beſides the ordinary *Entertainment* of their own *Princes* and *private Families*. This being incredible to be practiſed in ſo extreme barren a *Country*, I thought fit to mention, either to encourage, or reproach us. *General Melander* was wont to ſay, The good Husbandry of their *Anceſtors* had left them this Stock *pro ſacra Anchorâ*; conſidering how the People were afterwards reduced to live even on their *Trees*, when the Soldiers had devoured their *Hogs*; redeeming themſelves from great Extremities, by the *Timber* which they were at laſt compelled to cut down, and which, had it continued, would have proved the utter Deſolation of that whole *Country*.

I have this *Inſtance* from my moſt worthy and honourable Friend Sir *William Curſius* (late his Majeſty's *Reſident* in *Germany*) who received this Particular from the Mouth of *Melander* himſelf: In like manner, the *Princes* and *Freedoms* of *Heſſe*, *Saxony*, *Thuringia*, and divers other Places *there*, make vaſt Incomes of their *Foreſt-fruit* (beſides the *Timber*) for *Swine* only: So as in a certain *Wood* in *Haſſia* only, *twenty thouſand* have been fatted, yielding the *Prince* 30000 *Florins*.

I ſay

I ſay then, whoſoever ſhall duly conſider this, will find planting of *Wood* to be no contemptible *Addition*, beſides the *Paſture* much improved, the *cooling* of *fat* and heavy *Cattle*, keeping them from injurious Motions, Diſturbance, and running as they do in Summer, to find *Shelter* from the *heat* and *vexation* of *Flies*. CHAP. VII.

27. But I have done, and it is now time to get out of the *Wood*, and to recommend this, and all that we have propos'd, to his moſt Sacred Majeſty, the Honourable Parliament, and to the Lord High-Treaſurer, Principal Officers, and Commiſſioners of the Royal Navy; that where ſuch *Improvements* may be made, it be ſpeedily and vigorouſly proſecuted; and where any *Defects* appear, they may be duly reformed.

28. And what if for this purpoſe there were yet ſome additional *Office* conſtituted, which ſhould have a more univerſal *Inſpection*, and the charge of all the *Woods* and *Foreſts* in his *Majeſty*'s *Dominions?* This might eaſily be performed by *Deputies* in every *County*; Perſons judicious and skilful in *Husbandry*; and who might be repair'd to for advice and direction: And if ſuch there are at preſent (as indeed our *Laws* ſeem to provide) that their *Power* be ſufficiently *amplified* where any thing appears *deficient*; and as their Zeal excited by worthy Encouragements, ſo might Neglects be encounter'd by a vigilant and induſtrious *Check*. It ſhould belong to their *Province*, to ſee that ſuch *Proportions* of *Timber*, *&c.* were *planted* and ſet out upon every hundred, or more of *Acres*, as the Honourable *Commiſſioners* have ſuggeſted; or as might be thought convenient, the *quality* and *nature* of the *places* prudently conſidered: It ſhould be their *Office* alſo to take notice of the *growth* and *decay* of *Woods*, and of their *fitneſs* for publick *uſes* and *ſale*, and of all theſe to give *Advertiſements*, that all defect in their ill governing may be ſpeedily remedied; and the Superior *Officer* or *Surveyor*, ſhould be accountable to the Lord *Treaſurer*, and to the *principal Officers* of his *Majeſty*'s Navy for the time being: And why might not ſuch a *Regulation* be worthy the eſtabliſhing by ſome *Solemn* and Publick *Act* of *State*, becoming our Glorious *Prince*, SOVEREIGN OF THE SEAS; and his prudent *Senate*, this preſent *Parliament?*

But to ſhew how this *Xilotrophiæ Studium* for the preſervation of *Timber* was honour'd,

29. We find in *Ariſtotle*'s *Politicks*, the Conſtitution of *Extra-urban Magiſtrates* to be *Silvarum Cuſtodes*; and ſuch were the *Conſulares Silvæ*, which the Great *Cæſar* himſelf (even in a Time when *Italy* did abound in *Timber*) inſtituted; and was one of the very firſt things which he did, at the ſettling of that vaſt *Empire*, after the *Civil Wars* had exceedingly waſted the *Country*: *Suetonius* relates it in the Life of *Julius*; and *Peter Crinitus* in his Fifth *Book De Honeſta Diſciplina*, *c.* 3. gives this Reaſon for it, *Ut materies* (ſaith he) *non deeſſet, qua videlicet Navigia publica poſſent à præfecturis fabrum, conſici.* True it is, that this *Office* was ſometimes called *Provincia minor*; but for the moſt part annex'd and joined to ſome of the greateſt *Conſuls* themſelves; that facetious *Sarcaſm* of the *Comedian*

De collegiis Fabrorum, Centonariorum, & Dendrophororum, Navicularior. rationum exercitor. & Caudicariorum, plurima extant Inſcriptiones apud Lipſium *in lib. Inſcrip. antiq. quales Bergomerſium, Brixianor. Comenſium, etiam Hieron. Lugdunenſ. Araricorum & Rhodanicor. eorumque corporum, & Collegiorum patronis curatoribus. Vide Rubeum, lib.* 1. *Hiſt. Ravennat. Item de* Dendrophoris *Lod. Theodoſ. lib.* 1. *&* 2. *iiſdem verbis inſcripto: Moriſot. Orb. Marit. lib.* 1. *cap.* 24.

Book III. (where *Plautus* names it *Provincia caudicaria*) referring only to ſome under-*Officer*, ſubſervient to the other: And ſuch a *Charge* is at this day extant amongſt the noble *Venetians*, who have near *Triviſi* (beſides what they nouriſh in other places) a goodly *Foreſt* of *Oaks*, preſerved as a *Jewel*, for the only *uſe* of the *Arſenal*, called the *Montello*, which is in length *twelve Miles*, large *five*, and near *twenty Miles* in compaſs; carefully ſuperviſed by a certain *Officer*, whom they name *il Capitano*: The like have the *Genoëzes* for the care of the goodly *Foreſts* of *Aitonæ*, in the *Iſland* of *Corſica*, full of goodly *Oaks*, and other *Timber*; which not only furniſh that State with ſufficient *Materials* to build their own *Gallies*, and other *Veſſels*, but ſo many for *ſale* to other Nations, that ſince the late *Inſult* the *French* made upon that Glorious *City*, he has *haughtily* forbid them to *Traffick* any more with Strangers, by ſupplying them as heretofore, to their great Detriment and Loſs: This *Timber* is of ſuch a *Grain* and *Quality*, as though felled in the *New Moon*, it is not at all impair'd.

We might, beſides all theſe, *inſtance* in many other prudent *States*; not to importune you with the expreſs *Laws* which *Ancus Martius* the *Nephew* of *Numa*, and other *Princes* long before *Cæſar*, did ordain for this very purpoſe; ſince, indeed, the care of ſo publick and honourable an *Enterprize* as is this of *Planting* and *Improving* of *Woods*, is a right *Noble* and *Royal Undertaking*; as that of the *Foreſt* of *Dean*, *&c.* in particular, (were it bravely manag'd) an *Imperial Deſign*; and I do pronounce it more worthy of a *Prince*, who truly conſults his Glory in the higheſt *Intereſt* of his *Subjects*, than that of gaining *Battels*, or ſubduing a *Province*.

And now after all this, and the *Directions* and *Encouragements* enumerated in this *Chapter*, together with the moſt important Concerns of theſe *Dominions*, and (next to *God*'s immediate *Protection*) the only and moſt neceſſary Expedient to preſerve them: By whoſe Negligence ſo little *Effects* appear of theſe *Improvements*, which might by this time have been made in the *Royal Magazines*, ever ſince the *Firſt Edition* of this *Treatiſe* (and of ſo fair a growth of uſeful *Timber*) I liſt not to declare; though the *Officers* then intruſted, and whoſe duty it was, be now no more: I cannot, however, but call to mind, how ſeemingly ſolicitous and earneſt the *Commiſſioners* were, I ſhould *digeſt* and *methodize* the Papers I laid before them on this Subject, with a Zeal becoming *Publick Spirits* (as under their Hands I have to ſhew) whilſt the putting it in practice to any laudable degree, was ſoon caſt by as a *Project* ſcarce worth the while. I again affirm, That had theſe Advantages of *Foreſt Culture* been then vigorouſly encouraged and promoted, there had now been of thoſe *Materials* infinite ſtore, even from the very *Acorn* and *Seminary*, a competent advance of the moſt uſeful *Timber* for the building of *Ships*, (as I think is ſufficiently made out) ſince his late Majeſty's *Reſtoration:* The want of *Timber*, and the neceſſity of being ſupply'd by *Foreign* Countries, if not prevented by better and more induſtrious Inſtruments, may prove in a ſhort time a greater miſchief to the Publick, than the late *diminution* of the *Coin*. I wiſh I prove no *Prophet*, whilſt I cannot for my life but often think of what the learned *Melanchon* above a hundred Years ſince was wont to ſay (long before thoſe barbarous *Wars* had made theſe Devaſtations in *Germany*), That the Time was coming, when the want of *three* Things would be the *Ruin* of *Europe*; *Lignum*,

num, *probam Monetam*, *probos Amicos*; *Timber*, *Good Money* and *Sincere Friends*. How far we ſee this *Prediction* already verify'd, let others judge: And if what I here have touch'd with ſome *Reſentment* in behalf of the *Publick* and my *Country*, in this Ruſtick *Diſcourſe*, and us'd the freedom of a plain *Foreſter*, ſeems too rude; it is the *Perſon* I was commanded to *put on*, and my *Plea* is ready,

Δρυὸς παρούσης, πᾶς ἀνὴρ ξυλεύεται.

Præſente Quercu, *ligna quivis colligit*.

For who could have ſpoken *leſs* upon ſo ample *a Subject*? And therefore I hope my *Zeal* for it in theſe *Papers*, will excuſe the prolixity of this *Digreſſion*, and all other the *Imperfections* of my Services.

Si canimus Silvas, Silvæ *ſunt* Conſule *dignæ*.

DENDRO-

DENDROLOGIA.

The FOURTH BOOK.

An *Hiſtorical Account* of the *Sacredneſs* and *Uſe* of *ſtanding Groves*, &c.

1. AND thus have we finiſh'd what we eſteem'd neceſſary for the Direction of *Planting*, and the *Culture* of *Trees* and *Woods* in general; whether for the raiſing of *New*, or preſervation of the more *ancient* and venerable *ſhades*, crowning the Brows of lofty *Hills*, or furniſhing and adorning the more fruitful and humble *Plains*, *Groves* and *Foreſts*, ſuch as were never prophan'd by the Inhumanity of *Edge-Tools*: *Woods*, whoſe *Original* are as unknown as the *Arcadians*; like the goodly *Cedars* of *Libanus*, *Pſalm* 104. *Arbores Dei*, according to the *Hebrew*, for ſomething doubtleſs which they noted in the *Genius* of thoſe *Venerable Places* beſides their meer Bulk and Stature: And verily, I cannot think to have well acquitted my ſelf of this uſeful *Subject*, till I ſhall have in ſome ſort vindicated the Honour of *Trees* and *Woods*, by ſhewing my *Reader* of what Eſtimation they were of *old* for their *Divine*, as well as *Civil Uſes*; at leaſt refreſh both *Him*, and my *Self*, with what occurs of *Hiſtorical* and Inſtructive amongſt the Learned concerning them. And firſt, *ſtanding Woods* and *Foreſts* were not only the *Original Habitations* of *Men*, and for *Defence* and *Fortreſſes*, but the firſt occaſion of that *Speech*, *Polity* and *Society* which made them differ from *Beaſts*. This, the Architect * *Vitruvius* ingeniouſly deſcribes, where he tells us that the violent percuſſion of one Tree againſt another forc'd by an impetuous *Wind*, ſetting them on *fire*, the Flame did not ſo much ſurprize and affright the ſalvage *Foreſters*, as the *Warmth*, which (after a little gazing at the unuſual Accident, they found ſo comfortable: This (ſays he) invited them to approach it nearer, and as it ſpent and conſum'd, by Signs and barbarous Tones (which in proceſs of time were form'd into ſignificant *Words*) to encourage one another to ſupply it with freſh *Combuſtibles*: By this Accident the wild People, who before were afraid of one another, and dwelt aſunder, began to find the benefit and ſweetneſs of Society, mutual Aſſiſtance, and Converſation; which they afterwards improv'd, by building *Houſes* with thoſe Trees, and dwelling nearer together: From theſe mean and imperfect beginnings they arriv'd in time to be Authors of the moſt poliſh'd *Arts*, eſtabliſh'd *Laws*, peopled *Nations*, planted *Countries*, and laid the Foundation of all that *Order* and *Magnificence* which the ſucceeding *Ages* have enjoy'd. No more then let us admire the enormous *Moles* and *Bridges* of *Caligula* acroſs to *Baiæ*; or that of *Trajan* over the *Danubius*, ſtupendous Work of *Stone* and *Marble*, to the adverſe Shores; whilſt our *Timber* and our *Trees* making us *Bridges* to the furtheſt

* Vitruv. *l.* 2. *c.* 1.

furtheſt *Indies* and *Antipodes*, land us into *New Worlds*: In a word, (and to ſpeak a bold and noble truth) *Trees* and *Woods* have twice ſav'd the whole *World*; firſt by the *Ark*, then by the *Croſs*; making full amends for the *Evil Fruit* of the Tree in *Paradiſe*, by that which was born on the Tree in *Golgotha*. But that we may give an account of their *ſacred*, and other *Uſes* of theſe venerable *Retirements*, we will next proceed to deſcribe what thoſe *Places* were. CHAP. I.

2. Though *Silva* was the more general *Name*, denoting a large Tract of *Wood*, or *Trees*, the *inciduæ* and *cæduæ*; yet there were ſeveral other Titles attributed to greater or leſſer Aſſemblies of them: *Domus Silvæ* was a *Summer-Houſe*; and ſuch was *Solomon's* Οἶκος δρυμός. 1 *Reg.* vii. 2. As when they planted them for Pleaſure and Shade only, they had their *Nemora*; and as we our *Parks*, for the preſervation of *Game*, and particularly *Veniſon*, *&c.* their *Saltus*, and *Silva invia*, ſecluded for the moſt part from the reſt, *&c.* But among *Authors* we meet with nothing more frequent, and indeed more celebrated, than thoſe *Arboreous* Amenities and *Plantations* of *Woods*, which they call'd *Luci*; and which, though ſometimes, we confeſs, were reſtrain'd to certain peculiar places, for *Devotion*, (which were never to be fell'd); yet were they alſo promiſcuouſly both uſed, and taken for all that the wide *Foreſt* comprehends, or can ſignify. To diſmiſs a number of *Critics*, The Name *Lucus* is deriv'd by *Quintilian* and others who delight to play with *Words* (by *Antiphraſis*) *à minime Lucendo*, becauſe of its denſity,

Vide Juſt. Lipſium in Germaniam Taciti prolixe ſatis.

——*nulli penetrabilis aſtro.*

whence *Apuleius* us'd *Luco ſublucido*; and the *Poets*, *Subluſtri umbra:* Others (on the contrary) have taken it for *Light* in the *Maſculine*; *umbra non quia minime, ſed quia maxime Luceat*; by ſo many *Lamps* ſuſpended in them before the *Shrine*; or becauſe they kindled *Fires*, by what Accident unknown:

[a] ——*Whether it were*
By Lightning ſent from Heaven, or elſe there
The Salvage Men in mutual Wars and Fight,
Had ſet the Trees on Fire, their Foes t' affright.

Or whether the Trees ſet Fire on themſelves,

[b] *When claſhing Boughs thwarting, each other fret.*

For ſuch Accidents, and even the very heat of the *Sun* alone has kindled wonderful *Conflagrations*: Or haply (and more probably) to conſume their *Sacrifices*, we will not much inſiſt. The *Poets* it ſeems, ſpeaking of *Juno*, would give it quite another *Original*, and tune it to their Songs invoking *Lucina*, whilſt the main and principal difference conſiſted not ſo much in the *Name*, as the *Uſe* and *Dedication*, which was for ſilent, awful, and more ſolemn *Religion*, (*ſilva, quaſi ſilens locus*); to which purpoſe they were chiefly *manu conſiti*, ſuch as

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[a] ——Seu Cæli fulmine miſſo,
Sive quod inter ſe bellum Silveſtria gentes
Hoſtibus intulerant ignem, formidinis ergo, *&c.*
LUCRET. l. 5.

[b] Mutua dum inter ſe rami ſtirpeſque teruntur.

Book IV.

we have been treating of, *entire*, and never *violated* with the *Axe*: *Fabius* calls them *Sacros ex Vetuſtate*, venerable for their *Age*; and certain it is, they had of very great *Antiquity* been conſecrated to holy Uſes, not only by ſuperſtitious Perſons to the Gentile *Deities* and *Heroes*, but to the true *God*, by the *Patriarchs* themſelves, who *ab initio* (as is preſum'd) did frequently retire to ſuch Places to ſerve him in, compoſe their *Meditations*, and celebrate ſacred *Myſteries*, *Prayers*, and *Oblations*; following the Tradition of the *Gomerites* or Deſcendants of *Noah*, who firſt peopl'd *Galatia* and other Parts of the World after the univerſal † *Deluge*. From hence ſome preſume that even the ancient *Druids* had their *Origin*: But that *Abraham* might imitate what the moſt Religious of that *Age* had practis'd before him, may not be unlikely; for we read he ſoon planted himſelf and Family at the *Quercetum* of *Mambre*, *Gen.* xiii. where, as * *Euſebius*, *Eccl. Hiſt. l.* 1. *c.* 18. gives us the account, He ſpread his *Pavilions*, erected an *Altar*, *offer'd* and perform'd all the Prieſtly *Rites*; and *there*, to the immortal Glory of the *Oak*, or rather *Arboreous Temple*, he entertain'd *God* himſelf. *Iſidore*, St. *Hierom*, † and *Sozomen* report confidently, that one of the moſt eminent of thoſe *Trees* remained till the Reign of the great *Conſtantine*, (and the *Stump* till St. *Hierom*) who founded a || venerable *Chappel* under it; and that both the *Chriſtians*, *Jews*, and *Arabs*, held a ſolemn *Anniverſary* or *Station* there, and believed that from the very time of *Noah*, it had been a Conſecrated Place: Sure we are, it was about ſome ſuch Aſſembly of *Trees*, that *God* was pleas'd firſt of all to appear to the *Father* of the *Faithful*, when he eſtabliſhed the *Covenant* with him; and more expreſly, when removing thence (upon confirming the League with *Abimelech*, *Gen.* xxi. and ſettling at *Beerſheba*) he deſign'd an expreſs Place for *God's* Divine Service: For *there*, ſays the Sacred *Text*, *He planted a Grove, and called upon the Name of the Lord.* Such another *Tuft* we read of (for we muſt not always reſtrain it to *one* ſingle *Tree*) when the *Patriarch* came to אילון מורה *Elon Moreh*, *ad Convallem illuſtrium:* But whether that were the ſame in which the *High-Prieſt* repoſited the famous *Stone*, after the Exhortation mention'd, *Joſhua* xxiv. 26. we do not contend; under an *Oak* ſays the *Scripture*, and it grew near the *Sanctuary*, and probably might be that which his *Grand-child* conſecrated with the Funeral of his beloved *Rebecca*, *Gen.* xxxv. For 'tis apparent by the *Context*, that *There God* appeared to him again: So *Grotius* upon the Words (*ſubter quercum*,) *Illam ipſam* (ſays he) *cujus mentio*, Gen. xxxv. 4. *in hiſtoria Jacobi & Judæ*; and adds, *Is locus in honorem Jacobi diù pro Templo fuit.* That the very *Spot* was long after us'd for a *Temple* in honour of him; and that Place which *Zozomen* calls *Terebinthum*, from certain *Trees* growing there as ancient as the World it ſelf, ſays *Joſephus de Bell. Jud.* l. 5. Others report that this *Tree* ſprung from a *Staff*, which one of the *Angels*, who appear'd to the *Patriarch*, fixed in the Ground: So *Geor. Syncellus in Chronico. Mirum verò eſt* (ſays *Valeſius* on this Paſſage of *Euſebius*) *cum quercus ibidem fuerit, ſub qua Abraham Tabernaculum poſuerit*, (*ut legitur in* Cap. xviii. Gen.) *cur locus ipſe à Terebintho potius quam a Quercu nomen acceperit.* In the mean time, as to the Prohibition, xvi. *Deut.* 21. whether this *Patriarchal Devotion* in *Groves*, and under *Arboreous Shades*, was approv'd by *God*, till there was a fixed *Altar*, and his *Ceremonial*

† *See the Learned* Perron *Antiq. fuſe.*

* *Euſeb. Lib.* v. *cap.* 19. *Demonſtr. Evang. ubi de Terebintho.* Hieronymus, *de locis Hebraicis*, &c.

† *Hierom in Epitaph Paul. vide & Eraſ. Schol in Ep. ad Pamachium.*

|| See *the Emperor's Reſcript to Biſh.* Macarius, *&c. for the Demolition of the* Idol *worſhipp'd there; and the building of a Magnificent* Church. *Euſeb. de vit. Conſtant.* Lib. iii. Cap. 50.

Ceremonial Worſhip confin'd to the *Tabernacle* and *Temple*, I think needs be no * queſtion. CHAP. I.

3. If we therefore now would track the Religious Eſteem of *Trees* and *Woods*, yet farther in *Holy Writ*, we have that glorious *Viſion* of *Moſes* in the *fiery Thicket*; and it is not to abuſe or violate the *Text*, that *Moncæus* and others, interpret it to have been an *entire Grove*, and not a ſingle *Buſh* only, which he ſaw as burning, yet unconſum'd. *Puto ego* (ſays my Author) *rubi vocabulo non quidem rubum aliquem unicum & ſolitarium ſignificari, verum rubetum totum, aut potius fruticetum, quomodo de Quercu Mambre pro Querceto toto Docti intelligunt.* Now that they worſhipped in that Place ſoon after their coming out of *Egypt*, the following Story ſhews; and the *Feaſt* of *Tabernacles* had ſome reſemblance of *Patriarchal* Devotion under *Trees*, though but in temporary *Groves* and *Shades* in manner of *Booths*, yet celebrated with all the refreſhings of the *Foreſt*; and from the very Infancy of the *World*, in which *Adam* was entertain'd in *Paradiſe*, and *Abraham* (as we noted) receiv'd his Divine Gueſts, not in his *Tent*, but under a Tree, an *Oak*, (*Triclinium Angelicum*, the *Angels* Dining-Room) all intelligent Perſons have embrac'd the Solace of ſhady *Arbours*, and all devout Perſons found how naturally they diſpoſe our Spirits to Religious Contemplations; For *this*, as ſome conceive, they much affected to plant their Trees in *Circles*, and gave that capacious Form to the firſt *Temples*, obſerv'd not only of old, but even at this day by the *Jews*, as the moſt accommodate for their Aſſemblies; or, as others, becauſe that Figure moſt reſembl'd the *Univerſe*, and the *Heavens*: *Templum à Templando*, ſays a knowing *Critic*; and another, *Templum eſt neſcio quid immane, atque amplum*; ſuch as *Arnobius* ſpeaks of, that had no *Roof* but *Heaven*, till that ſumptuous Fabric of *Solomon* was confin'd to *Jeruſalem*, and the goodlieſt *Cedars*, and moſt coſtly *Woods* were carried thither to form the Columns, and lay the Rafters; and *then*, and not till then, was it ſo much as *Schiſm* that I can find, to retire to *Groves* for their *Devotion*, or even to *Bethel* it ſelf.

* *D. Doughty Analecta Sacra Excurſ.* xiii.

2. In ſuch *Receſſes* were the ancient *Oratories* and *Proſeuche*, built *Thearte*-wiſe, *ſub dio*, at ſome diſtance from the *Cities*, xvi. *Acts*; and made uſe of even amongſt the *Gentiles*, as well as the People of *God*; (nor is it always the leſs authentical for having been the guiſe of *Nations*); hence that of *Philo*, ſpeaking of one who πάσας Ιουδαίων προσευχὰς ἐδενδροτόμησε, &c. *had fell'd all the* Trees *about it*; and ſuch a Place the *Satyriſt* means, where he asks, *In quâ te quæro proſeucha?* becauſe it was the *Rendezvouz* alſo, where poor People us'd to frequent to beg the *Alms* of devout and charitable Perſons; ſo as it was eſteem'd *piacular* for any to cut down ſo much as a ſtick about them, unleſs it were to build them; when with the *Pſalmiſt*, Men had *Honour* according to their forwardneſs of repairing the *Houſes* of *God* in the Land; upon which account it was lawful to lift up *Axes* againſt the goodlieſt Trees in the *Foreſt*. But thoſe zealous days are paſt;

xxiii. *Levit.* 40.

See *Tirinus*, our *Mede*, *Ainſworth. Diatrib.* on xxiv. *Joſh.* 26. *Valeſius Annos.* in *Lib.* 2. *Hiſt. Eccleſ. Euſeb.* p. 28.

[a] *Now* Temples *ſhut*, *and* Groves *deſerted lie*:
All Gold adore, *and neglect Piety.*

[a] Et nunc deſertis ceſſant ſacraria Lucis:
Aurum omnes victâ, jam Pietate colunt.
PROPERT.

In

BOOK IV.

In the mean time, that which came neareſt to the *Schænopegia* of the *Jews*, and other Solemnities, call'd by the *Romans*, *Umbræ*; as thoſe in *Neptunalibus* are deſcrib'd by the *Poet:*

[b] *All ſorts together flock; and on the Ground*
Diſplay'd, each Fellow with his Mate drinks round.
Some ſit in open Air, ſome build their Tents;
And ſome themſelves in branchy Arbors fence.

Plutarch ſpeaking of the *Anniverſary Feaſt* of *Bacchus*, plainly reſembles it to that of the *Tabernacles*, carrying about Θύρσους φοινικῶν, Branches of *Palm*, *Citron*, and other Trees, as *Joſephus* deſcribes the *Jewiſh Feſtival*: The *Cuſtom* (for ought I know) ſtill kept up in many Places of our Country, and abroad, on *May-Day* (and about the time of the year) when the young *Men* and *Maidens*, like the *Pagan* Θύρσοις φυέλα, go out into the *Woods* and *Copp'ces*, cut down and * ſpoil young *Springers*, to dreſs up their *May-Booth*, and dance about the *Pole*, as in *Pictures* we ſee the wanton *Iſraelites* about the *Molten Calf*. For thus, as we noted, thoſe *Rites* commanded by *God* came to be prophaned, and the Retiredneſs of *Groves* and *Shades* for their *Opacouſneſs*, abus'd to abominable Purpoſes, and Works of Darkneſs. But what good or indifferent thing has not been ſubject to Perverſion? It is ſaid in the end of *Iſaiah*, *Exprobratur Hebræis quod in Opiſthonais Idolorum horti eſſent in quorum medio februabantur*; but how this is applicable to *Groves*, does not appear ſo fully; though we find them interdicted, *Deut.* xvi. 21. *Judg.* vi. 26. 2 *Chron.* xxxi. 3, *&c.* and forbidden to be planted near the *Temple*. And an impure *Grove* on Mount *Libanus*, dedicated to *Venus*, was by an Imperial *Edict* of *Conſtantine* extirpated: But from the *Abuſe* of the thing to the *Nonuſe*, the *Conſequence* is not always valid; and we may note as to this very Particular, that where in divers Places of *holy Writ* the Denunciation againſt *Groves* is ſo expreſs, it is frequently to be taken but *Catachreſtically*, from the *Wooden Image* or *Statue* call'd by that Name, as our Learned *Selden* makes out by ſundry Inſtances in his *Syntagma de Diis Syris*. Indeed the Uſe of *Groves* upon account of *Devotion* was ſo antient, and ſeem'd ſo univerſal, that they conſecrated not only real and natural *Groves*, but *lucos pictos*, artificial *Boſcage* and Repreſentations of them.

The Sum of all is, *Paradiſe* itſelf was but a kind of *Nemorous Temple*, or Sacred *Grove*, planted by *God* himſelf, and given to Man, *tanquam primo ſacerdoti*; the word is עבד, which properly ſignifies to ſerve or adminiſter *res divinas*; a Place conſecrated for ſober Diſcipline, and to contemplate thoſe *Myſterious* and *Sacramental* Trees, which they were not to touch with their Hands; and in Memory of them, I am inclin'd to believe, holy Men (as we have ſhew'd in *Abraham* and others) might plant and cultivate *Groves*, where they traditionally invok'd the *Deity*; and St. *Hierom*, *Chryſoſtom*, *Cyprian*, *Auguſtin*, and other *Fathers* of the *Church*, greatly magnified theſe pious Advantages; and *Cajetan* tells us, that from *Iſaac* to *Jacob*, and

* See *Cap.* vii. *Lib.* iii. *Sect.* 5.

Vid. *Seldenum de Jure Nat. & Gent. Heb.* L. 2. c. 6. *Lil. & Gre. Gyraldum de diis gent. Syntag.* 17.

Vid. *Sanctium, Piſcat. Grotium.*

[b] Plebs venit, ac virides paſſim disjecta per herbas
Potat & accumbit cum pare quiſque ſua:
Sub jove pars durat, pauci tentoria ponunt;
Sunt quibus è ramis frondea facta caſu eſt.
OVID. *Faſt. Lib.* iii. *Mar.*

their Deſcendants, they followed *Abraham* in this Cuſtom. *Solomon* was a greater Planter of them, and had an *Houſe* of *Pleaſure* or *Lodge* in one of them for *Receſs*. In ſuch Places were the Monuments of their *Saints*, and the Bones of their *Heroes* depoſited; for which *David* celebrated the Humanity of the *Galadites*, *in Nemora Jabes*, as moſt ſacred and inviolable. In ſuch a Place did the *Angel* appear to *Gideon*; and in others, *Princes* were *inaugurated*; ſo *Abimelech*, *Judg*. ix. And the *Rabbins* add a Reaſon why they were reputed ſo venerable; becauſe more remote from Men and Company, more apt to compoſe the Soul, and fit it for divine Actions, and ſometimes *Apparitions*; for which the firſt Encloſures and *Sacra Septa* were attributed to *Groves*, * *Mountains*, *Fountains* of *Water*, and the like ſolemn Objects, as of peculiar Sanctity, and as the old Senſe of all Words denoting *Sanctity* did import *Separateneſs*, and uncommon *Propriety*: See our Learned *Mede*. For though ſince the *Devil's* Intruſion into *Paradiſe*, even the moſt holy and devoted Places were not free from his Temptations and ugly Stratagems; yet we find our *Bleſſed Saviour* did frequently retire into the Wilderneſs, as *Elijah* and St. *John Baptiſt* did before him, and divers other holy Men; particularly the Θεωρητικοὶ, whom *Philo* mentions; a certain religious Sect, who addicting themſelves to *Contemplation*, choſe the ſolitary Receſſes of *Groves* and *Woods*; as of old the *Rechabites*, *Eſſenes*, *Primitive Monks*, (and other *Inſtitutions*) retired amongſt the *Thebaid Deſarts*: And perhaps the *Air* of ſuch retired Places may be aſſiſtant and influential, for the inciting of penitential Expreſſions and Affections; eſpecially where one may have the additional Aſſiſtances of ſolitary *Grotts*, murmuring *Streams*, and deſolate *Proſpects*. I remember that under a *Tree* was the Place of that admirable St. *Auguſtin's* ſolemn *Converſion*, after all his importunate Reluctances: I have often thought of it, and it is a *melting* Paſſage, as himſelf has recorded it, *Con. l.* 8. *c.* 8. and he gives the reaſon, *Solitudo enim mihi ad negotium flendi aptior ſuggerebatur*. And that indeed ſuch Opportunities were ſucceſsful for *Recollection*, and to the very Reformation of ſome ingenuous Spirits, from ſecular Engagements to excellent and mortifying Purpoſes, we may find in that wonderful Relation of *Pontianus's* two Friends, great *Courtiers* of the Time, as the ſame holy *Father* relates it, previous to his own Converſion. And here I cannot omit an Obſervation of the learned Dr. *Plot*, in his (often-cited) *Nat. Hiſt.* of *Oxfordſhire*; taking notice of *two* eminent *Religious Houſes*, whoſe Foundations were occaſion'd by *Trees*; the firſt, *Oſney-Abbey*; the ſecond, by reaſon of a certain *Tree* ſtanding in the *Meadows* (where after was built the *Abbey*) to which a Company of *Pyes* were wont to repair, as oft as *Editha*, the Wife of *Robert d'Oyly*, came to walk that way to ſolace herſelf; for the clamorous *Birds* did ſo affect her, that conſulting with one *Radulphus* (*Canon* of St. *Fridiſwid*) what it might ſignify, the ſubtle Man advis'd her to build a *Monaſtery* where that *Tree* ſtood, as if ſo directed by the *Pyes* in a miraculous manner: Nor was it long e'er the *Lady* procur'd her *Husband* to do it, and to make *Radulphus* (her Confeſſor) firſt *Prior* of it.

Such another Foundation was caus'd by a tripple *Elm* having three *Trunks* iſſuing from one *Root*. Near ſuch a *Tree* as this, was Sir *Thomas White*, Lord Mayor of *London*, warn'd by a *Dream* to erect a *College* for the Education of Youth: which he did; namely, St. *John's*

CHAP. I.

* καὶ πρῶτον ὕλας ἀπενέμοντο, καὶ ὄρη ἀνέθεσαν. Lucian *de Sacrif.*

Philo *lib.* περὶ βίου θεερ.

BOOK IV. in *Oxford*; which with the very *Tree* ſtill flouriſhes in that famous *Univerſity*. But of theſe enough, and perhaps too much.

6. We ſhall now, in the next place, endeavour to ſhew, how this innocent Veneration to *Groves* paſſed from the *People* of *God* to the *Gentiles*, and by what degrees it degenerated into dangerous Superſtitions: For the *Devil* was always *God's Ape*, and did ſo ply his *Groves*, *Altars*, and *Sacrifices*, and almoſt all other Rites belonging to his Worſhip, that every *green Tree* was full of his Abominations, and Places devoted to his impure Service: *Hi fuêre* (ſays *Pliny*, ſpeaking of *Groves*) *quondam Numinum templa*, &c. "Theſe were of old "the *Temples* of the *Gods*; and after that ſimple (but antient Cuſtom) "Men at this day conſecrate the faireſt and goodlieſt *Trees* to ſome "*Deity* or other; nor do we more adore our glittering *Shrines* of *Gold* "and *Ivory*, than the *Groves*, in which with a profound and awful "Silence we worſhip them". *Quintilian* ſpeaking of the Veneration paid an old *Umbragious Oak*, adds, *In quibus grandia, & antiqua robora jam non tantum habeat ſpeciem, quantum Religionem:* For in truth, the very *Tree* itſelf was ſometimes *deified*, and that *Celtic* Statue of *Jupiter* no better than a prodigious tall *Oak*, whence 'tis ſaid the *Chaldean Theologues* deriv'd their Superſtition towards it; and the *Perſians*, we read, us'd that *Tree* in all their myſterious *Rites*. And as for *Wood* in general, they paid it that Veneration for its maintaining their *Deity*, (repreſented by their *Perennial Fire*) that they would not ſuffer any ſort of *Wood* to be us'd for *Coffins* to incloſe the *Dead* in, (but in Plates of *Iron*) counting it a Prophanation. In ſhort, ſo were People given up to this *deviliſh* and unnatural Blindneſs, as to the offering of *human Sacrifices*, not to the *Tree-Gods* only, but to the *Trees* themſelves as real *Gods*.

Cyril. Alexand. in Hoſ. iv. 13. *Deut.* xvi. 4. 2 *Reg.* xvi. 4.

Melchior Adamus Hiſt Eccl. de Sueconibus, c. 234.

Mariana in 2. *Paralip.* 28. 4.

[a] *Each* Tree *beſprinkled us with human Gore.*

Procopius tells us plainly, that the *Sclavij* worſhipped *Trees*, and whole *Foreſts* of them. See *Jo. Dubravius*, l. 1. *Hiſt. Bohem.* and that formerly the *Gandenſes* did the like; (ſo *Surius* the *Legendary*, 6 *Feb.* reports in the life of St. *Amadus*.) So did the *Vandals*, ſays *Albert Crantz*; and even thoſe of *Peru*, as I learn from *Acoſta*, l. 5. c. 11. But one of the firſt *Idols* which procur'd particular Veneration in them, was the *Sidonian Aſhteroth*, who took her name *à Lucis*, as the *Jupiter* ἐνδενδρος amongſt the *Rhodians*, the *Nemorenſis Diana* or *Arduenna*, a celebrated *Deity* of this our *Iſland*, for her Patronage of *Wood* and *Game*;

Diva potens nemorum, terror ſilveſtribus Apris, &c.

as *Gildas* an antient *Bard* of ours has it; ſo ſoon had Men it ſeems degenerated into this irrational and ſtupid Devotion, that Arch-*Fanatic Satan* (who began his Pranks in a *Tree*) debauching the contemplative Uſe of *Groves*, and other Solitudes. Nor were the *Heathens* alone in this Crime; the *Baſilidians*, and other *Hereticks*, even amongſt the *Chriſtians*, did conſecrate to the *Woods* and the *Trees*, their Serpent-footed and barbarous ΑΒΟΡΑΞΑΣ, as it is yet to be ſeen in ſome of their *Myſterious Taliſmans* and *Periapta's* which they carried about.

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[a] Omnis & humanis luſtrata cruoribus arbos.
LUCAN. *l.* 3.

But

But the *Roman* Madneſs (like that which the *Prophet* derides in the *Jews*) was well perſtring'd by *Sedulius* and others, for imploring theſe *Stocks* to be propitious to them, as we learn in *Cato de R. R. c.* 113. 134, *&c.* Nor was it long after, (when they were generally conſecrated by *Faunus*) that they boldly ſet up his *Oracles* and *Reſponſes* in theſe *nemorous* Places: Hence the Heathen *Chapels* had the Name of *Fana*, and from their wild and extravagant Religion, the *Profeſſors* of it *Fanaticks*; a Name well becoming ſome of our late *Enthuſiaſts* amongſt us; who, when their *Quaking Fits* poſſeſs them, reſemble the giddy Motion of *Trees*, whoſe Heads are agitated with *every Wind of Doctrine*.

In opere Paſchali.

7. Here we may not omit what learned Men have obſerv'd concerning the Cuſtom of *Prophets*, and Perſons inſpir'd of *old*, to *ſleep* upon the Boughs and Branches of *Trees*; I do not mean on the *tops* of them, (as the *Salvages* ſomewhere do in the *Indies*, for fear of *Wild Beaſts* in the Night-time) but on *Matraſſes* and *Beds* made of their Leaves, *ad Conſulendum*, to ask Advice of *God*. *Naturaliſts* tell us, that the *Laurus*, and *Agnus Caſtus*, were *Trees* which greatly compos'd the *Fancy*, and did facilitate true *Viſions*; and that the *firſt* was ſpecifically efficacious πρὸς τὸς ἐνθουσιασμὸς, (as my Author expreſſes it) to inſpire a *Poetical* Fury: Such a *Tradition* there goes of *Rebekah* the Wife of *Iſaac*, in imitation of her *Father-in-Law*: The Inſtance is recited out of an ancient *Eccleſiaſtical* Hiſtory by *Abulenſis*; and (what I drive at) that from hence the *Delphick Tripos*, the *Dodonæan Oracle* in *Epirus*, and others of that nature had their Originals: At this *decubation* upon *Boughs* the *Satyriſt* ſeems to hint, where he introduces the *Gypſies*,

See Fulgent. Mythol. *cap.* 13. *&* *Munſterum in Comment.*

See Hier. *in Trad.* Heb. 3 Reg. *c.* iv.

> [a] ——————*With fear*
> *A cheating* Jeweſs *whiſpers in her Ear,*
> *And begs an Alms: An* High-Prieſt's *Daughter ſhe,*
> *Vers'd in their* Talmud, *and* Divinity;
> *And propheſies beneath a ſhady Tree.*
>
> DRYDEN.

For indeed the *Delphic Oracle* (as *Diodorus l.* 16. tells us) was firſt made *è Lauri ramis*, of the *Branches* of *Laurel* transferr'd from *Theſſaly*, bended, and arched over in form of a *Bower* or *Summer-houſe*; a very ſimple Fabrick you may be ſure: And *Cardan*, I remember, in his Book *de Fato*, inſiſts very much on the Dreams of *Trees* for Portents and Preſages, and that the uſe of ſome of them do diſpoſe men to Viſions.

8. From hence then began *Temples* to be erected and ſought to in ſuch Places; nay, we find * *Sanction* for it among the *Laws* of the XII *Tables*: So as there was hardly a *Grove* without its *Temple*, ſo had every *Temple* almoſt a *Grove* belonging to it, where they plac'd *Idols*, *Altars* and *Lights*, endowed with fair Revenues, which the Devotion of ſuperſtitious Perſons continually augmented: Such were

Vide Annium Viterb. l. 17. *fol.* 158.
* Cic. *de Lege. l.* 2.

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[a] Arcanam Judæa tremens mendicat in aurem
Interpres Legum Solymarum, & magna Sacerdos
Arboris, ac ſummi fida internuncia Cœli.

JUV. *Sat.* 6.

thoſe

BOOK IV.

† See Aristophanes Schol. ad Pluti Verba: καὶ ταύτα πρὸς τὸ μέτωπον, &c. ——ὅτι ὅπὶ τῶ κοτίνων, καὶ ἄλλων δένδρων πανταχοῦ ἐν τοῖς ἱεροῖς προσπατταλεύουσι τὰ ἀναθήματα. To which add, Apul. Miles. VI. Videt dona speciosa, & lacinias auro literatas, ramis arborum postibusque suffixas.

those † *Arbores obumbratrices*, mention'd by *Tertullian* (*Apol. Cap.* ix.) on which they suspended their Ἀναθήματα and devoted Things: And I remember to have seen something very like this in *Italy*, and other Parts; namely, where the *Images* of the *B. Virgin*, and other *Saints*, have been enshrin'd in hollow and umbragious Trees, frequented with much veneration. Which puts me in mind of what that great Traveller *Pietro della Valle* relates, where he speaks of an extraordinary *Cypress*, yet extant, near the Tomb of *Cyrus*, to which at this day many *Pilgrimages* are made, and speaks of a *Gummy* Transudation which it yields, that the *Turks* affirm to turn every *Friday* into drops of *Blood:* The Tree is hollow within, adorn'd with many *Lamps*, and fitted for an *Oratory*; and indeed some would derive the Name *Lucus*, a *Grove*, as more particularly to signify such enormous and cavernous Trees, *quod ibi lumina accenderentur Religionis causa:* But our *Author* adds, The *Ethnics* do still repute all great *Trees* to be *Divine*, and the Habitation of *Souls* departed: These the *Persians* call *Pir* and *Imàm*. Perhaps such a hollow *Tree* was that *Asylum* of our *Poet's Hero*, when he fled from his burning *Troy*.

a ——*an Ancient* Cypress *near,*
Kept by Religious Parents many a Year.

For that they were places of Protection, and privileg'd like *Churches* and *Altars*, appears out of *Livy*, and other good Authority: Thus where they introduce *Romulus* encouraging his new *Colony*,

b *So soon as e'er the* Grove *he had immur'd,*
Haste hither (*says he*) here *you are secur'd.*

Virg. 6. Eclog. & 1 Æneid. Vide Fab. l. 3. Semest. c. 1.

Such a Sanctuary was the *Aricina*, and Suburban *Diana*, call'd the *Nemorale Templum*, and divers more which we shall reckon up anon. *Lucian* in his *dea Syri*, speaks of these *Temples* and Dedications in their *Groves* among the *Egyptians: Lucus in urbe fuit*, &c. and what follows? *Hic Templum*—and since they could not translate the *Grove* with the *Idol*, they * carv'd out something like it, which the superstitious People bought, carried home, and made use of, representing those venerable Places, in which they had the *Images* of some feign'd *Deity* (suppose it *Tellus*, *Baal*, or *Priapus*); and such was the *Jupiter* ἔνδενδρος of the *Rhodians*, *Bacchus* of the *Boetians*, צשתיוה the *Sidonian Ashteroth:* And the *Women* mentioned 2 *Reg.* xxiii. 7. who are said to weave *Hangings* and *Curtains* for the *Grove*, were no other than Makers of *Tentories*, to spread from Tree to Tree, for the more opportune and secret perpetration of those impure *Rites* and *Mysteries*, which (without these Coverings) even the opacousness of the Places were not obscure enough to conceal.

* Luci *dicuntur, non modo collectio Arborum, &c. sed etiam* Sciagraphiæ *sive* delineationes Lucorum *in* tabella: See the *Annotation* on *Isa.* xvii. collated with 2 *Reg.* xxiii. 6. *Crit. Sacr.* for they brought the *Grove* out of the *Temple*, themselves.

and burnt it; which clearly shews it was the *Picture* or *Image* of the *Grove*, and not the *Trees*

|| Canc. *l.* 1. *cap.* 42. Selden Jani Angl. fac. *cap.* 2.

9. The famous *Druids*, or || *Saronides*, whom the learned *Bochart* from *Diodorus*, proves to be the same, derived their *Oak-Theology*,

a ——juxtaq; antiqua Cupressus
Religione Patrum multos servata per annos.
Æn. 2.

b ——Ut saxo Lucum circumdedit alto
Quilibet, huc dicit, Confuge, tutus eris.

namely,

namely, from that ſpreading and gloomy ſhading Tree, probably the *Grove* at *Mambrè*, xiii. *Gen.* 2. How their *Myſteries* were celebrated in their *Woods* and *Foreſts*, is at large to be found in *Cæſar*, *Pliny*, *Strabo*, *Diodorus*, *Mela*, *Apuleius*, *Ammianus*, *Lucan*, *Aventinus*, and innumerable other Writers; where you will ſee that they choſe the *Woods* and the *Groves*, not only for all their *Religious Exerciſes*, but their *Courts* of *Juſtice*; as the whole Inſtitution and Diſcipline is recorded by *Cæſar*, *l.* 6. and as he, it ſeems, found it in our Country of *Britain*, from whence it was afterwards tranſlated into *Gallia*: For he attributes the firſt riſe of it to this *once* happy *Iſland* of *Groves* and *Oaks*; and affirms, that the ancient *Gauls* travelled hither for their initiation. To this *Tacitus* aſſents, 14 *Annal.* and our moſt learned *Criticks* vindicate it, both from the *Greeks* and *French* impertinently challenging it: But the very *Name* it ſelf, which is purely *Celtick*, does beſt decide the Controverſy: For though δρῦς be *Quercus*; yet *Voſſius* skilfully proves that the *Druids* were altogether Strangers to the *Greeks*; but what comes yet nearer to us, *Dru*, *fides* (as one obſerves) begetting our now antiquated *Trou*, or *True*, makes our Title the ſtronger: Add to this, that amongſt the *Germans* it ſignified no leſs than *God* himſelf; and we find *Drutin*, or *Trudin* to import *Divine*, or *Faithful*, in the *Othfridian Goſpel*, both of them *Sacerdotal* Expreſſions. But that in this *Iſland* of ours, Men ſhould be ſo extremely devoted to Trees, and eſpecially to the *Oak*, the Strength and Defence of all our Enjoyments, inviron'd as we are by the Seas, and martial Neighbours, is leſs to be wonder'd:

[a] *Our* Britiſh Druids *not with vain intent,*
Or without Providence did the Oak *frequent*;
That Albion *did that* Tree *ſo much advance*
Nor Superſtition was, nor Ignorance.
Thoſe Prieſts divining even then, beſpoke
The mighty Triumphs of the Royal Oak:
When the Sea's *Empire with like boundleſs Fame,*
Victorious CHARLES *the Son of* CHARLES *ſhall claim.*

as we may find the *Prediction* glorioufly followed by our ingenious *Poet*, where his *Dryad* conſigns that ſacred *Depoſitum* to this *Monarch* of the *Foreſt*, the *Oak*; than which nothing can be more ſublime and rapturous, whilſt we muſt never forget that wonderful *Providence* which ſaved this forlorn and perſecuted *Prince*, after his Defeat at *Worceſter*, under the ſhelter of this auſpicious and hoſpitable Tree alone; when

——All the Countries fill'd
With Enemies Troops, in every Houſe and *Grove*,
His Sacred Head is at a Value held,
They ſeek, and near, now very near they move.

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[a] Non igitur Dryadæ noſtrates pectore vano,
Nec ſine conſulto coluerunt Numine Quercum;
Non illam Albionis jam tum celebravit honore
Stulta Superſtitio, venturive inſcia ſecli,
Angliaci ingentes puto prævidiſſe triumphos
Roboris, Imperiumque maris quod maximus olim
CAROLIDES vaſtâ Victor ditione teneret.

COULEI *L.* 6. Pl.

What ſhould they do? They from the Danger take
  Raſh, haſty Counſel; yet from Heav'n inſpir'd,
A ſpacious *Oak* he did his Palace make,
  And ſafely in its hollow Womb retir'd.

The *Loyal Tree* its willing Boughs inclin'd,
  Well to receive the climbing *Royal Gueſt*,
(In Trees more Pity than in Men we find)
  And its thick Leaves into an Arbour preſs'd.

A rugged Seat of *Wood* became a Throne,
  The obſequious Boughs His Canopy of State:
With bowing Tops the Tree their King did own,
  And ſilently ador'd Him as he ſate.

But to return to the Superſtition we were ſpeaking of (ſince utterly aboliſh'd) till the Reign of *Claudius*, as appears by *Suetonius*; yet by *Tacitus* they continued here in *Britain* under *Nero*, and in *Gaul* till *Vitellius*, as is found by St. *Gregory* writing to Q. *Brunehant*, about the prohibiting the Sacrifices and Worſhip which they paid to Trees: Which Sir *John Ware* affirms continued in *Ireland* till *Chriſtianity* came in.

10. From theſe *Silvan Philoſophers* and *Divines* (not to ſpeak much of the *Indian Brachmans*, or ancient *Gymnoſophiſts*) 'tis believed that the great *Pythagoras* might inſtitute his ſilent *Monaſtery*; and we read that *Plato* entertained his Auditors amongſt his *Walks* of *Trees*, which were afterward defac'd by the inhumanity of *Sylla*, when, as *Appian* tells us, he cut down thoſe venerable Shades, to build Forts againſt *Pyræus*: And another we find he had planted near *Anicerides* with his own Hands, wherein grew that celebrated *Platanus*, under which he introduces his Maſter *Socrates* diſcourſing with *Phædon de Pulchro*: Such another Place was the *Athenian* Cephiſia, as *Agellius* deſcribes it: We have already mention'd the ſtately *Xyſta*, with their Shades, in *cap.* 23. *Democritus* alſo taught in a *Grove*, as we find in that of *Hippocrates* to *Damagetus*, where there is a particular Tree deſign'd *ad Otium literarum*; and I remember *Tertullian* calls theſe Places *Studia opaca*: Under ſuch Shades and Walks, was at firſt the Famous *Academia*, eſteem'd ſo venerable, as it was by the old *Philoſopher* prophane ſo much as to laugh in it, ſee *Laertius*, *Ælian*, *&c.* I could here tell you of *Palæmon*, *Timon*, *Apollonius*, *Theophraſtus*, and many more that erected their Schools in ſuch *Colleges* of *Trees*, but I ſpare my Reader; I ſhall only note, that 'tis reported of *Thucydides*, that he compiled his noble *Hiſtory* in the *Scaplan Groves*, as *Pliny* writes; and in that matchleſs Piece *de Oratore*, we ſhall find the Interlocutors to be often under the *Platanus* in his *Tuſculan Villa*, where invited by the freſhneſs and ſweetneſs of the Place, *Admonuit* (ſays one of them) *me hæc tua* Platanus *quæ non minus ad opacandum hunc locum patulis eſt diffuſa ramis*, *quam illa*, *cujus umbram ſecutus eſt* Socrates, *quæ mihi videtur non tam ipſa aquila*, *quæ deſcribitur*, *quàm* Platonis *oratione creviſſe*, *&c.* as the *Orator* brings it in, in the Perſon of one of that Meeting.

Ad Mart.

I con-

CHAP. I.

I confeſs *Quintilian* ſeems much to queſtion whether ſuch places do not rather perturb and diſtract from an *Orator*'s * Recollection, and the depths of Contemplation: *Non tamen* (ſays he) *protinus audiendi, qui credunt aptiſſima in hoc nemora, ſilvaſque, quod illa cœli libertas, locorumque amœnitas, ſublimem animum, & beatiorem ſpiritum parent: Mihi certè jucundus hic magis, quam ſtudiorum hortater videtur eſſe receſſus: Namq; illa ipſa quæ delectant, neceſſe eſt avocent ab intentione operis deſtinati:* He proceeds, —— *Quare Silvarum amœnitas, & præter labentia flumina, & inſpirantes ramis arborum auræ, volucrumque cantus & ipſa latè circumſpiciendi libertas, ad ſe trahunt; ut mihi remittere potius voluptas iſta videatur cogitationem, quam intendere.* But this is only his ſingular ſuffrage, which as conſcious of his *Error*, we ſoon hear him retract, when he is by and by as loud in its Praiſes, as the *Places* in the World the beſt fitted for the diviner *Rhetoric* of *Poetry:* But let us admit another to caſt in his *Symbol* for *Groves: Nemora* (ſays he) *& Luci, & ſecretum ipſum, tantam mihi afferunt voluptatem, ut inter præcipuos Carminum fructus numerem, quod nec in ſtrepitu, nec ſedente ante oſtium litigatore, nec inter ſordes & lacrymas reorum componuntur: Sed ſecedit animus loca pura, atque innocentia, fruiturque ſedibus Sacris.*

Lib. IO. * See this moſt elegantly diſcuſs'd in a *Greek* Epiſtle of *Budæus* to his Brother, *Ep.* I.

Tacitus.

Whether this were the effect of the incomparable younger *Pliny*'s Epiſtle to this noble *Hiſtorian*, I know not; but to ſhew him by his own Example how *Study* and *Foreſt-ſport* may conſiſt together, he tells him how little the Noiſe of the *Chaſers* and bawling *Dogs* diſturbed him, when at any time he indulged himſelf that healthful Diverſion: "So far was he from being *idle*, and loſing time, that beſide his "*Javelin* and *Hunting-Pole*, he never omitted to carry his *Style* and "*Table-Book* with him, that upon any intermiſſion, whilſt he now and "then ſat by the *Toil* and *Nets*, he might be ready to note down any "*Noble Thought*, which might otherwiſe eſcape him: The very mo- "tions (ſays he) and agitation of the Body in the *Wood* and *Solitude*, "*Magna cogitationis incitamenta ſunt:* I know, my Friend (ſays he) "you'll ſmile at it, however take my Counſel; Be ſure never to car- "ry your *Bottle* and *Biſque* into the Field, without your *Pugillares* "*and Tablet*; you'll find as well *Minerva* as *Diana* in the *Woods* and "*Mountains*.

Plin. Ep vi. Lib. i. *Cornelio Tacito.*

And indeed the *Poets* thought of no other *Heaven* upon Earth, or elſewhere; for when *Anchiſes* was ſetting forth the Felicity of the other Life to his Son, the moſt lively Deſcription he could make of it was to tell him,

[a] ——*We dwell in ſhady* Groves.

And that when *Æneas* had travelled far to find thoſe happy Abodes,

[b] *They came to* Groves, *of happy Souls the Reſt,*
To Ever-greens, the Dwellings of the Bleſt.

Such a Proſpect he gives us of his *Elyſium*; and therefore wiſe and great Perſons had always theſe ſweet Opportunities of Receſs, their

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[a] ——Lucis habitamus opacis.

[b] Devenere locos lætos, & amœna vireta
Fortunatorum Nemorum, Sedeſque beatas.

Book IV. *Domos Silvæ*, as we read, 2 *Reg.* vii. 2. which were thence called *Houſes of Royal Refreſhment*, or as the *Septuagint*, οἴκους δρυμοῦ, not much unlike the *Lodges* in divers of our Noblemens *Parks* and *Foreſt-Walks*; which minds me of his choice in another *Poem*,

[a] *In lofty Towers let* Pallas *take her Reſt,*
Whilſt ſhady Groves *'bove all things pleaſe us beſt.*

And for the ſame Reaſon *Mæcenas*

[b] ——— *Choſe the* Broad Oak———

And as *Horace* beſpeaks them,

[c] *Me the cool Woods above the reſt advance,*
Where the rough Satyrs *with the light Nymphs dance.*

And *Virgil* again,

[d] *Our ſweet* Thalia *loves, nor does ſhe ſcorn*
To hunt umbragious Groves——— ———

Or as thus expreſſed by *Petrarch*,

[e] ———*The* Muſe *her ſelf enjoys*
Beſt in the Woods; Verſe flies the City noiſe.

So true is that of yet as noble a *Poet* of our own;

As well might *Corn*, as *Verſe* in Cities grow:
In vain the thankleſs Glebe we plow and ſow:
Againſt the unnatural Soil in vain we ſtrive:
'Tis not a Ground in which theſe Plants will thrive.

COWLEY.

When it ſeems they will bear nothing but *Nettles* and *Thorns* of *Satyrs*, and as *Juvenal* ſays, by *Indignation* too; and therefore "almoſt "all the *Poets*, except thoſe who were not able to eat Bread without "the Bounty of great Men; that is, without what they could get "by flattering them (which was *Homer*'s and *Pindar*'s Caſe) have not "only withdrawn themſelves from the Vices and Vanities of the *great* "*World*, into the innocent Felicities of *Gardens*, and *Groves*, "and *Retiredneſs*, but have alſo commended and adorned nothing ſo "much in their never-dying *Poems* *. Here then is the true *Parnaſſus*, *Caſtalia*, and the *Muſes*; and at every call in a *Grove* of venerable *Oaks*, methinks I hear the Anſwer of an hundred old *Druids*, and the *Bards* of our inſpir'd Anceſtors.

* *Juvenal Sat.* vii. 1. *Perſ. Sat.*

In a word, ſo charm'd were *Poets* with thoſe Natural Shades, eſpecially that of the *Platanus*, that they honour'd *Temples* with the

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[a] ——— Pallas quas condidit arces,
Ipſa colat, nobis placeant ante omnia Silvæ.
ECLOG. 2.

[b] Maluit umbroſam Quercum ——— ———

[c] ——— Me gelidum nemus
Nympharumq; leves cum Satyris Chori,
Secernunt populo—— ——

[d] Noſtra nec erubuit Silvas habitare Thalia.

[e] Silva placet Muſis, urbs eſt inimica Poetis.

Names

names of † *Groves*, though they had not a *Tree* about them: Nay ſometimes, one ſtately *Tree* alone was ſo rever'd: And of ſuch a one there is mention in a Fragment of an *Inſcription* in a *Garden* at *Rome*, where there was a *Temple* built under a ſpreading *Beech-Tree*, ſacred to *Jupiter*, under the Name of *Fagutalis*.

† Ἄλση καλοῦντες τὰ ἱερὰ πάντα, καν' ᾖ ψίλα, οἱ ποιηταὶ κοσμοῦσιν. Strab. *l.* 9.

Innumerable are the Teſtimonies I might produce in behalf of *Groves* and *Woods* out of the *Poets*, *Virgil*, *Gratius*, *Ovid*, *Horace*, *Claudian*, *Statius*, *Silius*, and others of later times, eſpecially the Divine *Petrarch*: (for *Scriptorum Chorus omnis amat Nemus*) were I minded to ſwell this *Charming* Subject, beyond the limits of a *Chapter*: I think only to take notice, that *Theatrical* Repreſentations, ſuch as were thoſe of the *Ionian* call'd *Andria*; the *Scenes* of *Paſtorals*, and the like innocent Rural Entertainments, were of old adorned and trimmed up *é ramis & frondibus, cum racemis & corymbis*, and frequently repreſented in *Groves*, as the learned *Scaliger* ſhews: And here the moſt beloved and coy *Miſtreſs* of *Apollo* rooted; and the nobleſt Raptures have been conceiv'd in the Walks and || Shades of *Trees*, and *Poets* have compoſed *Verſes* which have animated Men to heroic and glorious Actions; here *Orators* (as we ſhewed) have made their *Panegyrics*, *Hiſtorians* grave *Relations*, and the profound *Philoſophers* loved here to paſs their Lives in Repoſe and Contemplation; and the frugal Repaſts ——*molleſque ſub arbore ſomni*, were the natural and chaſte Delights of our *Fore-fathers*, ſo ſweetly deſcrib'd by *Papinius*,

Poetices, Lib. I. *cap.* 21.

|| See *Wower. de Umbra, cap.* 26. *Biſciola Horæ ſubciſ. cap.* 9.

Subter opaca quies vacuuſque ſilentia ſervat
Horror, & excluſæ pallet mala Lucis Imago
Nec caret Umbra Deo——
Arboribus ſuus horror ineſt, quin ipſe Sacerdos
Acceſſus, Dominumque timet deprehendere luci.

12. Nor were *Groves* thus only frequented by the great *Scholars*, and the great *Wits*, but by the greateſt *Stateſmen* and *Politicians* alſo. Thence that of *Cicero* ſpeaking of *Plato*, with *Clinias* and *Megillus*, who were us'd to diſcourſe *de rerumpublicarum inſtitutis, & optimis legibus*, in the *Groves* of *Cypreſs*, and other umbrageous Receſſes: It was under a vaſt *Oak* growing in the Park at St. *Vincent*'s, near *Paris*, that St. *Lovis* was us'd to hear Complaints, determine Cauſes, and do Juſtice to ſuch as reſorted thither: And we read of ſolemn Treaties of Peace held under a flouriſhing *Elm* between *Giſors* and *Trier*, which was afterwards fell'd by the *French* King *Philip* in a rage againſt King *Henry* II. not agreeing to it. Nay, they have ſometimes been known to *Crown* their *Kings* under a goodly *Tree*, or ſome venerable *Grove*, where they had their Stations and Conventions; for ſo they choſe *Abimelech*; ſee *Toſtatus* upon *Judg.* ix. 6. and I read (in *Chronicon Jo. Bromton*) that *Auguſtin* the Monk (ſent hither from the Pope) held a kind of *Council* under a certain *Oak* in the *Weſt* of *England*, and that concerning the Great *Queſtion*, namely the right Celebration of *Eaſter*, and the ſtate of the *Anglican*-Church, *&c.* where alſo 'tis reported he did a great Miracle. In the mean time I meet with but one Inſtance where this goodly *Tree* has been (in our *Country*) abus'd to cover impious Deſigns, as was that of the Arch-Rebel *Kett*, who in the Reign of King *Edw.* VI. (becoming *Leader* to that *Fanatick Inſurrection* in *Norfolk*), made an *Oak* (under the ſpecious Name of * *Reformation*), the *Court*, *Council-houſe*, and place of *Convention*, whence he

* *Quercus Reformationis.*

Book IV. he ſet forth his traiterous *Edicts:* The *Hiſtory* and Event of which, to the Deſtruction of the *Rebel* and his Followers, together with the *Sermon* (call it Speech, or what you pleaſe) which our then young *Matthew Parker* (afterward the venerable and learned Archbiſhop of *Canterbury*) boldly pronounced on it, to reduce them to Obedience, is moſt elegantly deſcribed in *Latin*, and in a Stile little inferior to the Antients, by our Countryman *Alexander Nevyll*, in his *KETTUS, ſive, De furoribus Norfolcienſium KETTO Duce.* But to return: The *Athenians* were wont to conſult of their graveſt Matters, and publick Concernments, in *Groves.* Famous for theſe *Aſſemblies* were the *Ceraunian*, and at *Rome* the *Lucus Petilinus*, the *Farentinus*, and others, in which there was held that renowned Parliament after the Defeat of the *Gauls* by *M. Popilius:* For it was ſuppoſed that in Places ſo ſacred, they would faithfully and religiouſly obſerve what was concluded amongſt them.

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> *In ſuch green Palaces the firſt Kings reign'd,*
> *Slept in their Shades, and Angels entertain'd;*
> *With ſuch old Counſellors they did adviſe,*
> *And by frequenting ſacred Groves, grew wiſe:*
> *Free from th' Impediments of Light and Noiſe,*
> *Man thus retir'd, his nobler Thoughts employs.*
>
> Mr. Waller.

As our excellent *Poet* has deſcribed it. And amongſt other weighty Matters, they treated of *Matches* for their *Children*, and the young People made *Love* in the cooler Shades, and engraved their *Miſtreſſes* Names upon the *Bark*; *Tituli æreis literis inſculpti*, as *Pliny* ſpeaks of that antient *Vatican Ilex*, and *Euripides* in *Hippolyto*; where he ſhews us how they made the *Inciſion* whiſper their ſoft Complaints like that of *Ariſtænetus*, Τοῖα ᾗδε ὦ δένδρεα, &c. and wiſh that it had but a Soul and Voice to tell *Cydippe*, the fair *Cydippe*, how ſhe was beloved: And doutbleſs this *Character* was ancienter than that in *Paper.* Let us hear the amorous *Poet* leaving his young Couple thus courting each other:

L. 16. c. 44. *Ariſt. l. Ep.* 10.

Vid. *Symmac. l.* 4. *Ep.* 28.

> [a] *My Name on Bark engrav'n by your fair Hand,*
> Oenone, *there, cut by your Knife, does ſtand;*
> *And with the Stock my Name alike does grow:*
> *Be't ſo, and my advancing Honour ſhow.*

Which doubtleſs he learnt of *Maro*, deſcribing the unfortunate *Gallus.*

> [b] *There on the tender Bark to carve my Love;*
> *And as they grow, ſo may my Hopes improve.*

And theſe pretty Monuments of Courtſhip I find were much uſed on the *Cherry-tree* (the *Wild* one, I ſuppoſe) which has a very ſmooth *Rind*, as the witty *Calphurnius:*

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[a] Inciſæ ſervant à te mea nomina fagi,
Et legor, *Oenone*, falce notata tua,
Et quantum trunci, tantum mea nomina creſcunt,
Creſcite, & in titulos ſurgite ritè meos.
Ovid. *Ep.*

[b] ——teneriſque meos incidere amores
Arboribus: Creſcent illæ, creſcetis amores.
Ecloc. 10.

Repeat,

[a] *Repeat, thy Words on* Cherry-bark *I'll take,*
And that red Skin my Table-Book will make.

Let us add the ſweet * *Propertius*:

Ah quoties teneras reſonant mea Verba ſub umbras,
Scribitur & veſtris Cynthia, Corticibus.

* *Lib.* 1. *Elegia* xviii.

And ſo deep were the *Inciſions* made, as that of † *Helena* on the *Platan*, (ὡς παιζων τὴς Ανγολη) that one might *run* and *read* them. And thus forſaken *Lovers* appeal to *Pines*, *Beeches*, and other Trees of the *Foreſt*. But we have dwelt too long on theſe Trifles; omitting alſo what we might relate of *Feaſting*, *Banqueting*, and other ſplendid Entertainments under Trees, nay, ſometimes in the very Bodies of them: But we will now change the Scene, as the *Egyptians* did the Mirth of their *Gueſts*, when they ſerved in a *Scull* to make them more ſerious. For thus,

† *Theocrit. Epithal.* Helenæ *Idyll.* 18.

13. Amongſt other Uſes of *Groves*, I read that ſome Nations were wont to hang, not *Malefactors* only, but their departed *Friends*, and thoſe whom they moſt eſteemed, upon Trees, as ſo much nearer to *Heaven*, and dedicated to *God*, believing it far more honourable than to be buried in the *Earth*; and that ſome affected to repoſe rather in theſe woody Places, *Propertius* ſeems to beſpeak:

[b] *The Gods forbid my Bones in the high Road*
Should lie, by every wandring Vulgar trod.
Thus buried Lovers are to Scorn expos'd;
My Tomb in ſome by-Arbor be inclos'd.

The ſame is affirmed of other *Septentrional* People by *Chr. Cilicus de Bello Dithmarſico*, l. 1. It was upon the Trunk of a knotty and ſturdy *Oak*, the antient *Heroes* were wont to hang the *Arms* and *Weapons* taken from the *Enemy*, as *Trophies*; as appears in the yet remaining *Stump* of *Marius* at *Rome*, and the *Reverſes* of ſeveral *Medals*. Famous for this was the pregnant *Oleaſter* which grew in the *Forum* of *Megara*, on which the *Heroes* of old left their *Shields* and *Bucklers*, and other warlike *Harneſs*, till in proceſs of time it had cover'd them with ſucceſſive Coats of *Bark* and *Timber*, as it was afterwards found when *Pericles* ſack'd the *City*; which the *Oracle* predicted ſhould be impregnable, till a *Tree* ſhould bring forth * *Armour*. We have already mention'd *Rebekah*, and read of *Kings* themſelves that honoured ſuch Places with their *Sepulchres*: What elſe ſhould be the meaning of 1 *Chron.* x. 12. when the valiant Men of *Jabeſh* interr'd the Bones of *Saul* and *Jonathan* under the *Oak*? Famous was the *Hyrnethian Cœmetery* where *Daiphon* lay. *Ariadne*'s Tomb was in the *Amathuſian* Grove in *Crete*, now *Candy*; for they believed that the *Spirits* and *Ghoſts* of Men delighted to expatiate, and appear in ſuch ſolemn Places, as the learned *Grotius* notes from *Theophylact*, ſpeaking of the *Dæmons*, upon *Matth.* viii. 20. for which cauſe *Plato*

* *Diod. Sic. lib.* 12.

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[a] Dic age, nam Ceraſi tua cortice verba notabo.
Et deciſa feram rutilanti carmina libro.

[b] Dî faciant mea ne terrâ locet oſſa frequenti
Quâ facit aſſiduo tramite vulgus iter;
Poſt mortem tumuli ſic infamantur amantum,
Me tegat arboreâ devia terra comâ.

gave

gave permiſſion, that Trees might be planted over *Graves*, to obumbrate and refreſh them. The moſt antient *Conditoria* and Burying-places were in ſuch *nemorous* Solitudes. The *Hypogæum* in *Macpela*, purchas'd by the *Patriarch Abraham* of the Sons of *Heth*, Gen. xxiii. for *Sarah*, his own *Dormitory*, and Family's Sepulchre, was convey'd to him with particular mention, *ver.* 3. of all the *Trees* and *Groves* about it; and the very firſt *Precedent* I ever read, of conveying a *Purchaſe* by a formal *Deed*.

Our bleſſed *Saviour* (as we ſhall ſhew) choſe the *Garden* ſometimes for his *Oratory*, and *dying*, for the Place of his *Sepulchre*; and we do avouch for many weighty Cauſes, that there are none more fit to bury our Dead in, than in our *Gardens* and *Groves*, or airy *Fields*, *ſub dio*; where our *Beds* may be decked and carpeted with verdant and fragrant *Flowers*, *Trees*, and *Perennial* Plants, the moſt natural and inſtructive *Hieroglyphics* of our expected *Reſurrection* and *Immortality*: beſides what they might conduce to the Meditation of the *living*, and the taking off our Cogitations from dwelling too intently upon more vain and ſenſual Objects, that *Cuſtom* of *burying* in *Churches*, and near about them (eſpecially in great and populous *Cities*) being both a *novel* Preſumption, undecent, ſordid, and very prejudicial to health; and for which I am ſorry it is become ſo cuſtomary. *Graves* and *Sepulchres* were of old made and erected by the ſides of the moſt frequented *Highways*, which being many of them magnificent *Structures* and *Mauſoleums*, adorn'd with *Statues* and *Inſcriptions*, (planted about with *Cypreſs* and other *Ever-greens*, and kept in Repair) were not only graceful, but a noble and uſeful Entertainment to the Travellers, putting them in mind of the Virtues and glorious Actions of the Perſons buried: of which, I think, my Lord *Verulam* has ſomewhere ſpoken. However, there was certainly no Permiſſion for any to be buried within the *Walls* of *Rome*, almoſt from the very Foundation of it; for ſo was the *Sanction*, *Tab.* XII. IN URBE NE SEPELITO. NEVE URITO, *Neither to bury or burn the Dead in the City.* And when long after they began to violate that Law, *Antoninus Pius*, and the *Emperor* ſucceeding, did again prohibit it. All we meet of antient to the contrary, is of *Ceſtius* the *Epulos Tomb*, which is a thick clumſy *Pyramid* yet ſtanding, *nec in Urbe*, *nec in Orbe*, as it were, but half *in*, and half *without* the *Wall*. If then it were counted a thing ſo prophane to bury in the *Cities*, much leſs would they have permitted it in their *Temples:* Nor was it in uſe among *Chriſtians*, who in the *Primitive* Ages had no particular *Cæmeteria*; but when (not long after) it was indulg'd, it was to *Martyrs* only *ad Limina*, and in the *Porches*, even to the *Depoſita* of the * *Apoſtles* themſelves. *Princes* indeed, and other illuſtrious Perſons, *Founders* of *Churches*, *&c.* had ſometimes their *Dormitories* near the *Baſilica* and *Cathedrals*, a little before St. *Auguſtin*'s Time; as appears by his Book *de cura pro Mortuis*, and the Conceſſion not eaſily obtain'd. *Conſtantine* (Son to the *Great Conſtantine* himſelf) did not without Leave, *inhume* his *Royal Father* in the *Church-Porch* of that *auguſt Fabrick*, though built by that famous *Emperor*; and yet after this, other great Perſons placed their *Sepulchres* no nearer than towards the *Church-Walls*; whilſt in the *Body* of the *Church*, they preſum'd no farther for a long time after,

* *See that Paſſage of the famous Civilian* Baldwin, *ad leg. Tab.* xii.

Chryſ. Hom. xxvi. *Epiſt. ad Corinth.*

after; as may be proved from the *Capitula* of *Charle-Magni*; nor hardly in the *City*, till the time of *Gregory* the *Great*; and when conniv'd at, it was complained of: And we find it forbidden (as to *Churches*) by the *Emperors*, *Gratian*, *Valentinian* and *Theodosius*; and so in the *Code*, where the *Sanction* runs thus, *Nemo Apostolorum vel Martyrum sedem humanis Corporibus existimet esse* † *Concessam*, &c. And now after all this, would it not raise our Indignation, to suffer so many *Extortioners*, *Luxurious*, *Profane*, and very mean Persons, without Merit, not only affecting, but permitted to lay their *Carcasses*, not in the *Nave* and Body of the *Church* only, but in the very *Chancel*, next the *Communion-Table*; ripping up the *Pavements*, and removing the *Seats*, &c. for some little Gratification of those who should have more respect to *Decency* at least, if for no other.

† *Gretzer. l. 2. de Fun. Christ. c. 8. Onuphr. de Ritu Sepul.*

The *Fields*, the *Mountains*, the *High-way-sides*, and *Gardens*, were thought enough honourable for those *Funeral* Purposes: *Abraham* and the *Patriarchs* (as we have shew'd) had their *Caves* and *Crypta* in the *Fields*, set abour with *Trees:* The *Kings* of *Judah*, their *Sepulchres* in their *Palaces*, not the *Sanctuary* and *Temple:* And our most *Blessed Saviour*'s was in a *Garden*; which indeed seems to me to be the most proper and eligible, as we have already shew'd; nor even to this day, do the *Greeks* and *Eastern Christians* bury in *Churches*, as is well known. A remarkable Instance of this, we have of a worthy Person of our own Country; Mr. *Burton*, Great Grandfather of the learned *Author* who writ the *Commentary* on *Antoninus*'s *Itinerary*; which for its *laudable singularity*, I present my *Reader* the Description of: *In agro Salopiensi Lognoræ ad Sabrinam*, Fl. *ad Piscinas in Horto Juxta Ædes Patruelis mei Francisci Burtoni Proavi mei Epitaphium*, with the following elegant Title, 1558.

Quod scelus? Aut Christi nomen temerare quod ausus,
Hinc vetitum sacro condere membra solo?
Dij melius; sincera fides, nec tramite veri
Devia, causa; illo tempore grande nefas.
Urbibus insultat nostris, dum turbida ROMA;
Rasaque gens sacris dat sua jura locis:
Nec sacri ritus, nec honores funeris; intra
Moenia Christicolis, heu male sancta! Pijs:
At referens Dominum inculpta munera vitæ,
Ad Domini Exemplar funera nactus erat
Ille ut odorifero tumulatus marmore in Horto:
Ossa etium redolens hortus & hujus habet.
Hic ubi & expectat, Felix! sonantia verba;
Ergo age! Mercedem jam; Bone serve, Cape.

Thus with the incomparable *Sannazarius*; *Non mihi fornicibus Pariis. Sculptures* and *Titles* preferable to the proudest *Mausoleums* I should chuse.

The late elegant and accomplished Sir *W. Temple*, tho' he laid not his whole *Body* in his *Garden*, deposited the better Part of it (his *Heart*) there; and if my *Executors* will gratify me in what I have desir'd, I wish my *Corps* may be *Interr'd* as I have bespoke them: Not at all out of *Singularity*, or for want of a *Dormitory*, (of which there is an ample one annex'd to the *Parish-Church*) but for other Reasons, not here necessary to trouble the Reader with; what I

BOOK IV. have ſaid in general, being ſufficient: However, let them order it as they think fit, ſo it be not in the *Church* or *Chancel*.

Plato (as we noted) permitted *Trees* to be planted over *Sepulchres*, to *Obumbrate* the departed: But with better reaſon; with *Flowers* and *redolent* Plants, Emblems of the Life of Man, compar'd in *Holy Scripture* to thoſe fading Beauties, whoſe *Roots* being buried in *Diſhonour*, riſe again in *Glory*; and of ſuch *Hortulan* Inſtanſtances, *Greuter* gives us this *Inſcription*,

Hi horti ita uti optimi maximique ſunt,
Cineribus ſerviant meis.
Hanc Curatores ſubſtituam,
Qui Veſenatus
Ex horum Hortorum Reditu
Natali meo.
Et præleant Roſam in perpetuum.

This ſweet Flower, born on a Branch full ſet with *Thorns*, and accompany'd with the *Lilly*, natural *Hieroglyphicks* of our *Fugitive*, *Umbratile*, anxious and tranſitory Life, making ſo fair a ſhew for a Time, is not without its *Thorn* and *Croſſes*: Theſe they therefore planted on their *Turfy Hillocks*; like what is yet extant in *Propylio* D. *Ambroſci a Porto Vercelli*.

PETRONIO JUCN VI. VIR.
SENI
PETRONIA MIRA L. F.
PATRONO QUÆ H. S.
Cccc LES POSSORIB
VICI BERDOMAS IN HERM.
TUENDO, ET ROSA QUOTANNIS.
ORNANDUM.

There is a white Amaracus, ὡ χρῶνται περὶ τετάφους, *uſed in* Funerals. *V.* Theoph. de Plant. Athenæus, *l.* 15. *c.* 7.

Of theſe and the like Antiquity, we could multiply Inſtances, the Cuſtom not yet altogether extinct in my own native County of *Surrey*, and near my Dwelling, where the *Maidens* yearly plant and deck the *Graves* of their defunct *Sweet-hearts* with *Roſe-buſhes*; of which I have given account in the learned Mr. *Gibſon*'s Edition of *Camden*; and for the reſt, ſee Mr. *Sumner* of *Garden-Burial*, and the learned Dr. *Cave*'s *Primitive Chriſtianity*.

And now let not what I have ſaid concerning the pious Dr. *Hammond*'s *Paraphraſe* in the *Text*, of *Hortulan Burial*, be thought foreign to my Subject; ſince it takes in the Cuſtom of it in the *Groves*, and ſhady and ſolemn Places, as I have already ſhew'd: And thus the *Yew-Trees* at preſent growing, and planted in our Country *Church-Yards*, *Cypreſs*, and other *Perennial* Greens, *Emblems* of *Immortality*, and a flouriſhing State to come, were not leſs proper to ſhade our natural Bed, (would our *Climate* ſuffer it) growing ſo like a *Shrowd*, as does that *Sepulchral* Tree.

To return then to that of *Groves*, and for Diverſion let us add a ſhort Recital of the moſt famous *Groves* which we find celebrated in *Hiſtories*; ſince thoſe, beſides many already mention'd, were ſuch, as being conſecrated both to *Gods* and *Men*, bore their Names. Amongſt theſe are reckoned the ſacred to *Minerva*, *Iſis*, *Latona*, *Cybele*, *Oſiris*, *Æſculapius*, *Diana*, and eſpecially the *Aricinian*, in

which there was a goodly *Temple* erected, placed in the midſt of an *Iſland*, with a vaſt *Lake* about it, a *Mount*, and a *Grotto* adorn'd with *Statues*, and irrigated with plentiful Streams: And this was that renowned Receſs of *Numa*, where he ſo frequently converſed with his *Ægeria*, as did *Minos* in the *Cave* of *Jupiter*; and by whoſe pretended Inſpirations they gain'd the deceived People, and made them receive what *Laws* they pleas'd to impoſe upon them. To theſe we may join the *Groves* of *Vulcan*, *Venus*, and the little Youth *Cupid*; * *Mars*, *Bellona*, *Bacchus*, *Silvanus*, the *Muſes*, and that near *Helicon* from the ſame *Numa*, their great *Patron*; and hence had they their Name *Camœnæ*. In this was the noble *Statue* of *Eupheme*, Nurſe to thoſe *Poetical* Ladies; but ſo the *Feranian*, and even *Mons Parnaſſus*, were thick ſhaded with *Trees*. Nor may we omit the more impure *Lupercal Groves*, ſacred, or prophan'd rather, yet moſt famous for their affording Shelter and Foſter to *Romulus*, and his Brother *Remus*.

* *Mars Silvanus* in *ancient Inſcriptions*. Vide *Catronem de R. R. c.* xxxiii.

That of *Vulcan* was uſually guarded by *Dogs*, like the Town of St. *Malo*'s in *Bretaigne*: The *Pinea Silva* appertain'd to the *Mother* of the *Gods*, as we find in *Virgil*. *Venus* had ſeveral *Groves* in *Ægypt*, and in the *Indian* Iſland, where once ſtood thoſe famous *Statues* cut by *Praxiteles*; another in *Pontus*, where (if you'll believe it) hung up the *Golden-Fleece* Meed of the bold Adventurer. Nor was the Watry-King *Neptune* without his *Groves*, the *Helicean* in *Greece* was his: So *Ceres*, and *Proſerpine*, *Pluto*, *Veſta*, *Caſtor*, and *Pollux*, had ſuch ſhady Places conſecrated to them; add to theſe the *Lebadian*, *Arſinoan*, *Paphian*, *Senonian*, and ſuch as were in general dedicated to all the *Gods*, for

[a] ——*Gods have dwelt in Groves.*

And theſe were as it were *Pantheons*. To the Memory of famous *Men* and *Heroes* were conſecrated the *Achillean*, *Aglauran*, and thoſe to *Bellerophon*, *Hector*, *Alexander*, and to others, who diſdained not to derive their Names from *Trees* and *Foreſts*; as *Silvius* the *Poſthumus* of *Æneas*; divers of the *Albanian* Princes, and great Perſons; *Stolon*, *Laura*, *Daphnis*, &c. And a certain Cuſtom there was for the *Parents* to plant a *Tree* at the Birth of an *Heir* or *Son*, preſaging by the growth and thriving of the *Tree* the proſperity of the *Child*: Thus we read in the Life of *Virgil*, and how far his *Natalitial Poplar* had out-ſtripp'd the reſt of its Contemporaries. And the Reaſon doubtleſs of all this was, the general Repute of the Sanctity of thoſe Places; for no ſooner does the *Poet* ſpeak of a *Grove*, but immediately ſome *Conſecration* follows, as believing that out of thoſe ſhady Profoundities, ſome *Deity* muſt needs emerge.

Quo poſſis viſo dicere Numen *ineſt.*

So as *Tacitus* (ſpeaking of the *Germans*) ſays, *Lucos*, & *Nemora conſecrant*, *Deorumque nominibus appellant ſecretum illud*, *quod ſolâ reverentiâ vident*: To the ſame, *Pliny*, *l.* 12. *c.* 1. *Arbores fuere Numinum templa*, &c. in which (ſays he) they did not ſo much

[a] ——Habitarunt Dî quoque Silvas.

revere

Book IV. revere the *Golden* and *Ivory* Statues, as the goodly *Trees* and awful *Silence*: And the Conſecration of theſe *Nemorous* Places we find in *Quintus Curtius*, and in what *Paulus Diaconus* relates of the *Longobards*, where the *Rites* are expreſs, allur'd as 'tis likely by the *Gloomineſs* of the *Shade*, Procerity and Altitude of the *Stem*, Floridneſs of the *Leaves*, and other Accidents, not capable of *philoſophizing* on the *phyſical* Cauſes, which they deem'd ſupernatural, and plainly divine; ſo as to uſe the Words of *Prudentius*,

[a] *Here all Religion paid; whoſe dark Receſs*
A ſacred Awe does on their Mind impreſs,
To their wild Gods——

And this *Deification* of their *Trees*, and amongſt other things, for their *Age* and perennial *Viridity*, ſays *Diodorus*, might ſpring from the manifold *Uſe* which they afforded, and haply had been taught them by the *Gods*, or rather by ſome *God-like* Perſons, whom for their Worth, and the publick Benefit, they eſteemed ſo; and that divers of them were voic'd to have been *metamorphoz'd* from *Men* into *Trees*, and again out of *Trees* into *Men*, as the *Arcadians* gloried in their *Birth*, when

[b] *Out of the teeming Bark of* Oaks *Men burſt:*

Which perhaps they fancied, by ſeeing Men creep ſometimes out of their Cavities, in which they often lodg'd and ſecur'd themſelves:

[c] *For in the Earth's Non-age under Heaven's new Frame,*
They ſtricter liv'd, who from Oaks *Rupture came.*
STAPYLTON.

Or as the ſweet *Papinius* again:

[d] *Fame goes, that ye brake forth from the hard Rind.*
When the new Earth with the firſt Feet was ſign'd:
Fields yet nor Houſes doleful Pangs reliev'd,
But ſhady Aſh *the numerous Births receiv'd,*
And the green Babe dropp'd from the pregnant Elm,
Whom ſtrange Amazement firſt did overwhelm
At Break of Day, and when the gloomy Night
Raviſh'd the Sun from their purſuing Sight,
Gave it for loſt——

Almoſt like that which *Rinaldo* ſaw in the enchanted *Foreſt*.

[e] *An aged* Oak *beſide him cleft and rent,*
And from his fertile hollow Womb forth went

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[a] Quos penes omne ſacrum eſt, quicquid formido tremendum
Suaſerit horrificos, quos prodigialia cogunt
Monſtra Deos—— *L. 2. Cont. Sym.*

[b] Genſque virûm, truncis, & rupto robore nati.

[c] Quippe aliter tunc orbe novo cœloque recenti
Vivebant homines, qui rupto robore nati, *&c.* JUVEN. *L. 2. S. 6.*

[d] ——————Nemorum vos ſtirpe rigenti
——Fama fatos, cum prima pedum veſtigia tellus
Admirata tulit, nondum arva, domûſque ferebant,
Cruda puerperia, ac populos umbroſa creavit
Fraxinus, & fœta viridis puer excidit Orno:
Hi lucis ſtupuiſſe vices, noctiſque feruntur,
Nubila, & occiduum longe Titana ſecuti
Deſperâſſe diem——

[e] Quercia gli appar, che perſe ſteſſa inciſa
Apre feconda il cavo ventre, è figlia;
En' eſce fuor veſtita in ſtrania guiſa
Ninfa d' età creſciuta—— CANTO 18.

(*Clad*

(Clad in rare Weeds, and ſtrange Habiliment)
A full-grown Nymph——

And that every great *Tree* included a certain tutelar *Genius* or *Nymph* living and dying with it, the *Poets* are full; a ſpecial Inſtance we have in that prodigious *Oak* which fell by the fatal Stroke of *Eriſichthon*; but the *Hamadryads* it ſeems were immortal, and had power to remove, and change their wooden Habitations.

In the mean while, as to thoſe *Nymphs* (grieving to be diſpoſſeſs'd of their antient Habitations) the *Fall* of a very aged *Oak*, giving a Crack like *Thunder*, has been often heard at many Miles Diſtance: Nor do I at any time hear the *Groans* without ſome Emotion and Pity; conſtrain'd (as I too often am) to *fell* them with much Reluctancy. Now that many ſuch Diſaſters have happened to the *Owners* of the Places where goodly *Trees* have been *fell'd*; I cannot forget *one*, who giving the firſt ſtroke of the *Axe* with his own Hand, (and doubtleſs purſuing it with more) kill'd his own *Father* by the *Fall* of the *Tree*, not without giving the uncautious *Knight* (for ſo he was) ſufficient warning to avoid it. And here I muſt not paſs by the *Groaning-Board* which they kept for a while in *Southwark*, drawing abundance of People to ſee the Wonder; ſuch another *Plant* being formerly, it ſeems, expoſed as a Miracle at *Caumont* near *Tolouſe* in *France*, and as it ſometimes happens in *Woods* and *Foreſts*, thro' the Incluſion of the *Air* within the Cavities of the *Timber*; and perhaps gave heretofore occaſion of the fabulous *Dodonian Oracle:* But however it were, methinks I ſtill hear, and am ſure feel the diſmal Groans (happening on the 26th of *Novemb.* 1703.) of our *Foreſts*, ſo many thouſand of goodly *Oaks* ſubverted by that late dreadful *Hurricane*; proſtrating the Trees, and cruſhing all that grew under them, lying in ghaſtly Poſtures, like whole *Regiments* fallen in *Battel* by the Sword of the *Conqueror*. Such was the Proſpect of many Miles in ſeveral Places, reſembling that of *Mount Taurus*, ſo naturally deſcrib'd by the *Poet*, ſpeaking of the Fall of the *Minotaurs* ſlain by *Theſeus*.

——— *Illa procul radicitus Exturbata,*
Prona Cadit, late quacumvis obvia frangens.

The Loſſes and dreadful Stories of this Ruin were indeed great, but how much greater the univerſal Devaſtation through the Kingdom! The publick Account tells us, beſides innumerable Men, reckoning no leſs than 3000 brave *Oaks* in one Part only of the *Foreſt* of *Dean* blown down; and in *New-Foreſt* in *Hampſhire* about 4000; and in about 450 *Parks* and *Groves*, from 200 large Trees to 1000 of excellent Timber, without counting Fruit and Orchard Trees *ſans* number; and proportionably the ſame through all the conſiderable *Woods* of the Nation; with thoſe ſtately *Groves*, *Avenues* and *Viſta's* which the *Author* names, eſpecially *one* Tree of near eighty Foot high, of clear Timber 600, all ſubverted within the Compaſs of five *Acres*.

Sir *Edward Harly* had One thouſand three hundred blown down; myſelf above 2000; ſeveral of which torn up by their Fall, rais'd Mounds of Earth near 20 foot high, with great Stones intangled among the Roots and Rubbiſh; and this within almoſt ſight of my Dwelling, (now no longer * *Wotton*) ſufficient to mortify and change my too great Affection and Application to this *Work*; which, as I contentedly

* *Wood-Town.*

 ſubmit

Book IV. ſubmit to, ſo I thank *God* for what are yet left ſtanding: *Nepotibus Umbram.*

Lactantius reports of a People who *worſhipped* the *Wind*, as ſome at this day among the *Indians* do the *Devil*, that he may do them no harm.

What this *Prince* of the Air did to *Job* and his Religious Family, for the Tryal of his *Patience*, by *God*'s permiſſion, the *Scripture* tells us: And for what Cauſe he ſtill ſuffers that *malicious Spirit* to exert his Fury in theſe Lower *Regions*, the ſame *God* only knows; though certainly for our *Chaſtiſement*; and therefore *Reformation*, *Submiſſion* and *Patience* will become our beſt Security.

Scaliger the Father affirms, He could never convince his learned Antagoniſt *Eraſmus*, but that Trees felt the firſt ſtroke of the *Axe*, and diſcovers a certain *Reſentment*: And indeed it ſeems to *hold* the *Edge* of the fatal *Tool*, till a wider *Gap* be made: And ſo exceedingly apprehenſive they are of their Deſtruction, that as *Zoroaſter* ſays, If a Man come with a ſharp *Bill*, intending to fell a *Barren Tree*, and a Friend importunately *deprecate* the angry Perſon, and prevail with him to ſpare it, the Tree will infallibly *bear* plentifully the next Year: Such is the ſuperſtitious Sanctity and Folly of ſome credulous People.

But we were ſpeaking of *Metamorphoſes* of one *Species* into another; as it is ſaid of a *Platan* into an *Olive*-Tree, when *Xerxes* came to *Laodicea*: And *Lycoſthenes* talks of a *Sambucus* that bare *Grapes*, which I believe he miſtook for *Elder-Berries.*

Pliny mentions a Timber-Tree, that being felled, they found it full of *Stones*, the ſolid Wood grown over it: As it happened in *Germany*: Others (as above noted) that had *Armour*, *Shields*, and *Weapons* inveſted with the Timber of an *Old Oak*, which might have, when younger, been hung about it for *Trophies*: But ſuch another was found in *Germany*, that had the *Statue* of the *B. Virgin* in the very Centre of an aged *Oak* of eight foot diameter, as *John Burgoſius* affirms, and that the Place where the Tree ſtood was turned into a *Chapel* near *Dinand ad Moſum*, famous for *Miracles:* See his Book *de parturido B. M. Virg.*

15. We might here indeed produce the wonderful ſtrange *Apparitions* of *Spirits* interceding for the ſtanding and life of Trees, when the *Axe* has been ready for Execution; as you may ſee in that *Hymn* of *Callimachus*, *Pauſanias*, and the famous Story of *Paræbius* related by *Apollonius* in 2 *Argonaut.* with the fearful *Cataſtrophe* of ſuch as cauſeleſly and wantonly violated thoſe goodly Plantations (from which *Fables* aroſe *that* of the *Dodonean* and *Vocal Foreſts*, frequent in *Heathen* Writers) but by none ſo elegantly as the witty *Ovid*, deſcribing the Fact of the wicked *Eriſichthon.*

In Phoe. & Arcad.

a ——*Who* Gods *deſpis'd*,
Nor ever on their Altars ſacrific'd:
Who Ceres *Groves with Steel prophan'd*; *Where ſtood*
An old huge Oak; *even of it ſelf a Wood.*
Wreaths, *Ribbons*, *grateful Tables deckt his Boughs*

---

a ——Qui numina divum
Sperneret, & nullos aris adoleret honores, &c.

And

And ſacred Stem, the Dues of powerful Vows.
Full oft the Dryades, *with Chaplets crown'd,*
Danc'd in the ſhade, full oft they tript around
About his Bole. Five Cubits three times told
His ample Circuit hardly could infold.
Whoſe ſtature other Trees as far exceeds,
As other Trees ſurmount the humble Weeds.
Yet this his Fury rather did provoke:
Who bids his Servants fell the ſacred Oak.
And ſnatches, while they paus'd, an Axe *from one;*
Thus ſtorming: Not the Goddeſs *lov'd alone;*
But, though this were the Goddeſs, *ſhe ſhould down,*
And ſweep the Earth with her aſpiring Crown.
As he advanc'd his Arms to ſtrike, the Oak
Both ſigh'd and trembl'd at the threatning ſtroke:
His Leaves and Acorns pale together grew,
And colour-changing Branches ſweat cold Dew:
Then wounded by his impious hand, the Blood
Guſh'd from the Inciſion in a purple Flood:
Much like a mighty Oxe, *that falls before*
The ſacred Altar, ſpouting ſtreams of Gore.
On all Amazement ſeiz'd: When one of all
The Crime deters, nor would his Axe *let fall.*
Contracting his ſtern Brows; Receive, ſaid he,
Thy Pieties Reward; and from the Tree
The ſtroke converting, lops his Head; then ſtrake
The Oak *again; from whence a Voice thus ſpake:*
A Nymph *am I, within this Tree inſhrin'd,*
Belov'd of Ceres. *O prophane of Mind,*
Vengeance is near thee: With my parting Breath,
I propheſy, a comfort to my Death.
He ſtill his Guilt purſues; who over-throws
With Cables, and innumerable Blows,
The ſturdy Oak; *which nodding long, down ruſh'd,*
And in his lofty Fall his Fellows cruſh'd.

SANDYS.

But a ſad *Revenge* follows it, as the *Poet* will tell you: And one might fill a juſt Volume with the Hiſtories of *Groves* that were violated by wicked Men, who came to fatal periods; eſpecially thoſe upon which the *Miſſelto* grew, than which nothing was reputed more ſacred,

[a] *To* Miſſelto *the* Druids *us'd to ſing.*

For among ſuch *Oaks* they uſually dwelt,

——Nemora alta remotis
Incolitis Lucis——

LUCAN.

with whoſe Leaves they adorn'd and celebrated their Religious *Rites.* The *Druids*, ſays *Pliny*, *lib.* xvi. *c.* 4. (for ſo they call their *Divines*)

[a] Ad viſcum Druidæ, Druidæ cantare ſolebant.

eſteem

Book IV. eſteem nothing more venerable than *Miſſelto*, and the *Oak* upon which it grows, *&c.* Indeed they did nothing of Importance, without ſome Leaves or Branches of this Tree, and its very *Excreſcence*, as ſent from Heaven; and with a ſolemn *Sacrifice* of two *White-Bulls*; the *Miſſelto* not to be gather'd, but cut by the *Prieſt* with a *Golden Axe*, praying for a *Bleſſing* on this Divine Gift, *&c.* But of this Conſult (beſides the *Author*) *Mela*, *Lactantius*, *Euſebius de præparat. Evangel.* and the *Aulularia* of *Pſeudo-Plautus*, *Camden* and others; whilſt as to that *Excreſcence*, I am told of the Diſaſters which happened to the *two* Men who (not long ſince) fell'd a goodly Tree, call'd the *Vicar*'s *Oak*, ſtanding at *Nor-Wood* (nor far from *Croydon*) partly belonging to the *Archbiſhop*, and was *Limit* to four Pariſhes which met in a point; on this *Oak* grew an extraordinary Branch of *Miſſelto*, which in the time of the *ſacrilegious Uſurpers* they were wont to cut and ſell to an *Apothecary* of *London*; and though warn'd of the *Misfortunes* obſerved to befall thoſe who injured this *Plant*, proceeding not only to cut it quite off, without leaving a *Sprig* remaining, but to demoliſh and fell the *Oak* it ſelf alſo: The firſt ſoon after loſt his *Eye*, and the other brake his *Leg*; as if the *Hamadryads* had revenged the Indignity.

It is reported that the *Minturenſian Grove* was eſteem'd ſo venerable, that a Stranger might not be admitted into it; and the great *Xerxes* himſelf, when he paſſed through *Achaia*, would not touch a *Grove* which was dedicated to *Jupiter*, commanding his Army to do it no Violence; and the Honours he did to one ſingle (but a goodly) *Platanus*, we have already mentioned. The like to this we find when the *Perſians* were put to flight by *Pauſanias*; though they might have ſav'd their Lives by it, as appears in the Story. The ſame Reverence made that *Hercules* would not ſo much as taſte the *Waters* of the *Ægerian Groves*, after he ſlew *Cacus*, though extreamly thirſty.

[a] ——*The Prieſteſs ſaid,*
(A Purple Fillet binding her Grey Head),
Stranger, pry not, but quit this ſhady Seat:
Avant, and whiles thou ſafely may'ſt, retreat,
To Men forbid, and by hard Sanction bound:
Far better other Springs were by thee found.

Nor indeed in ſuch Places was it lawful to *Hunt*, unleſs it were to kill for *Sacrifice*, as we read in *Arrianus*; whence 'tis reported by *Strabo*, that in the *Ætolian Groves* ſacred to *Diana*, the *Beaſts* were ſo tame, that the very *Wolves* and *Stags* fed together like *Lambs*, and would follow a man licking his Hands, and fawning on him. Such a *Grove* was the *Crotonian*, in which *Livy* writes, there was a ſpacious Field like St. *James*'s *Park*, ſtored with all ſorts of *Game*. There were many *Foreſts* conſecrated to *Jupiter*, *Juno*, and *Apollo*; eſpecially the famous *Epidaphne*, near the *Syrian Antioch*, which was moſt incomparably pleaſant, and adorn'd with *Fountains* and

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[b] Puniceo canas ſtamine vincta comas,
Parce oculis hoſpes, Lucoque abſcede verendo,
Cede agedum, & tuta limina linque fuga,
Interdicta viris, metuenda lege piatur,
Di tibi dent alios fontes——— PROPERT. l. 4.

rare

rare *Statues.* * There was to be ſeen the *Laurel* which had been his chaſte *Miſtreſs*, and in the Centre of it his *Temple*, an *Aſylum:* Here it was *Coſroes* and *Julian* did ſacrifice upon ſeveral Occaſions, as *Euſebius* relates, but could not with all their impious *Arts* obtain an *Anſwer*; becauſe the holy *Babylas* had been interr'd near that *Oracle*; for which it was reputed ſo venerable, that there remained an expreſs *Title* in the *Code*, *de Cupreſſis ex Luco Daphnes non excidendis, vel venundandis*, that none ſhould either *fell*, or *ſell* any of the Trees about it; which may ſerve for another Inſtance of their *burying* in ſuch Places. The truth is, ſo exceedingly *ſuperſtitious* they were, and tender, that there was almoſt no meddling with theſe devoted Trees; and even before they did but *conlucare* and prune one of them, they were firſt to ſacrifice, leſt they might offend in ſomething ignorantly: But to *cut down* was *Capital*, and never to be done away with any *Offering* whatſoever; and therefore *Conlucare* in *Authors*, is not (as ſome pretend) *ſuccidere*, but to *prune* the Branches only; and yet even this gentle tonſure of Superfluities was reputed a kind of Contamination; and hence *Lucus coinquinari dicitur*, unleſs in the Caſe of *Lightning*, when *Cælo tacti*, a whole Tree might quite be felled, as marked by *Heaven* for the Fire: But of this ſufficient. We could indeed fill many Sheets with the *Cataſtrophe* of ſuch as maliciouſly deſtroy'd *Groves*, to feed either their Revenge or Avarice: See *Plutarch* in *Pericles*, and the Saying of *Pompeius: Cicero* ſharply reproves *C. Gabinius* for his prodigious ſpoil in *Greece*; and it was of late Days held a piece of *Inhumanity* in *Charles* the *French* King, when he entred the *Friſons* after he had ſlain their Leader, to cut down their *Woods*; a Puniſhment never inflicted by ſober Princes, but to prevent *Idolatry* in the old *Law*, and to ſhew the heinouſneſs of Diſloyalty and Treaſon by latter *Sanctions*; in which Caſe, and for *Terror*, even a *Traytor's Woods* have become *Anathema*, as were eaſy to inſtance out of *Hiſtories.*

* *See this delicious Place elegantly deſcribed by* S. Chryſoſtom, *lib. de* S. Babil. *Tom.* vi. p. 671. Sozom. *Lib.* vi. *cap.* 19. Niceph. *lib.* x. *cap.* 28.

Salmaſ. exer. Plin. Solin.

16. But what ſhall we ſay then of our late prodigious *Spoilers*, whoſe furious Devaſtation of ſo many goodly *Woods* and *Foreſts*, have bequeath'd an *Infamy* on their *Names* and *Memories*, not quickly to be forgotten! I mean our unhappy *Uſurpers*, and injurious *Sequeſtrators*; not here to mention the deplorable Neceſſities of a gallant and loyal *Gentry*, who for their *Compoſitions* were (many of them) compelled to add yet to this *Waſte*, by an inhuman and unparallel'd *Tyranny* over them, to preſerve the poor remainder of their *Fortunes*, and to find them *Bread.*

Nor was it here they deſiſted, when, after the Fate of that once beautiful *Grove* under *Greenwich-Caſtle*, (of late ſupply'd by his preſent *Majeſty*) the Royal *Walk* of *Elms* in St. *James's Park*,

That living Gallery of aged Trees,

was once propos'd to the late *Council* of *State* (as they called it) to be cut down and ſold, that with the reſt of his Majeſty's Houſes already demoliſhed, and marked out for Deſtruction, his Trees might likewiſe undergo the ſame Deſtiny, and no Footſteps of *Monarchy* remain unviolated.

17. It is from hence you may calculate what were the *Deſigns* of thoſe excellent *Reformers*, and the Care theſe great *Stateſmen*

BOOK IV. took for the Preſervation of their *Country*, when being *Parties* in the *Booty* themſelves, they gave way to ſo diſhonourable and impolitick a *Waſte* of that *Material*, which being left entire, or husbanded with Diſcretion, had proved the beſt Support and Defence of it. But this (ſay they) was the effect of *War*, and in the height of our *Contentions*. No, it was a *late* and *cold deliberation*, and long after all had been ſubdued to them; nor could the moſt implacable of *Enemies* have expreſs'd a Reſolution more barbarous.

For, as our own incomparable *Poet* deſcribes it,

——*'Twas not enough alone to take the Spoils*
Of God's, and the King's Houſes; theſe unjuſt
And impious Men deſtroy the ſtately Piles:
Of every Ruin there's a wicked Luſt.

In every Place the groaning Carts are fill'd
With Beams and Stones; ſo buſy and ſo loud
Are the proud Victors, as they meant to build:
But they to Ruin and Deſtruction crowd.

Timber, *which had been buried many Years*
Under ſuch Royal Towers, they invade:
'Tis ſure that Hand the Living never ſpares,
Which is ſo wicked to diſturb the Dead.

Then all the Woods *the barbarous Victors ſeize,*
(The noble Nurſery of the Fleet and Town,
The hopes of War, and Ornaments of Peace)
Which once Religion did as ſacred own.

Now publick Uſe, and great Convenience claims,
The Woods *from private Hands inviolate;*
Which greedy Men to leſs devouring Flames,
Do for ſweet Lucre freely dedicate.

No Age they ſpare, the tender Elm *and* Beech,
Infants of thirty Years they overthrow;
Nor could old Age it ſelf their Pity reach,
No Reverence to hoary Barks *they know?*

The unhappy Birds, an ever-ſinging Choir,
Are driven from their ancient ſhady Seats,
And a new Grief does Philomel *inſpire*
With mournful Notes, which ſhe all Night repeats.

Let them the Woods *and* Foreſt *burn and waſte,*
There will be Trees to hang the Slaves at laſt:
And God, who ſuch infernal Men diſclaims,
Will root 'em out, and throw 'em into Flames.

In which he has ſhew'd himſelf as well a *Prophet* as a *Poet*.

We have ſpoken of the great *Xerxes*, that paſſing Conqueror through *Achaia*, he would not ſuffer his *Army* to violate ſo much as a Tree of his Adverſaries; and have ſufficiently obſerved from the Ancients, that the * *Gods* did never permit them to eſcape unpuniſh'd, who were injurious to *Groves*. What became of *Agamemnon*'s Hoſt after his Spoil of

*Though cut down for building of Ships.

of the *Woods* at *Aulis*? Hiſtories tell us *Cleomenes* died mad: The *Temeſæan Genius* became proverbial; and the deſtructive Fact that the enrag'd *Cæſar* perpetrated on the *Maſſilian* Trees, went not long unrevenged; *thus* related by the *Poet*, and an illuſtrious *Record* of all we have hitherto produc'd, to aſſert their Veneration.

Lucum Eſculapio dicatum ſuccideratTurullius, manifeſtis Numinis illius viribus, eum in Lucum quem violaverat, ille attractus eſt, effecitque Deus ut ibi potiſſimum occideretur. Vide Valer. Max. *Lib.* i. *cap.* 1. *n.* 19.

Lucus erat longo nunquam violatus ab ævo, &c.
LUCAN. *l.* 3.

A Wood *untouch'd of old was growing there*
Of thick-ſet Trees, whoſe Boughs ſpreading and fair,
Meeting, obſcured the incloſed Air,
And made dark Shades, exiling Phœbus *Rays:*
There no rude Fawn, nor wanton Silvan *plays;*
No Nymph diſports, but cruel Deities
Claim barbarous Rites, and bloody Sacrifice:
Each Tree defil'd with Human Blood; if we
Believe Traditions of Antiquity:
No Bird dares light upon thoſe hallowed Boughs,
No Beaſts make there their Dens; no Wind there blows;
No Lightning falls: A ſad religious Awe,
The quiet Trees unſtirr'd by Wind do draw.
Black Water Currents from dark Fountains flow:
The Gods unpoliſh'd Images do know
No Art, but plain and formleſs Trunks they are.
Their Moſs and Mouldineſs procures a fear:
The common Figures of known Deities
Are not ſo fear'd: Not knowing what God 'tis,
Makes him more awful: By relation
The ſhaken Earth's dark Caverns oft did groan:
Fallen Yew-trees *oft of themſelves would riſe:*
With ſeeming Fire oft flam'd th' unburned Trees:
And winding Dragons the cold Oaks *embrace:*
None give near Worſhip to that baleful Place;
The People leave it to the Gods alone.
When black Night reigns, or Phœbus *guilds the Noon,*
The Prieſt himſelf trembles, afraid to ſpy
In th' awful Woods its Guardian Deity.

But now *Eriſichthon*-like, and like him in *Puniſhment*; for *his* was Hunger, *Cæſar*'s Thirſt, and Thirſt of Human *Blood*, reveng'd ſoon after in his *Own*.

The Woods *he bids them fell, not ſtanding far*
From all their Work: Untouch'd in former War,
Among the other bared Hills it ſtands
Of a thick growth; the Soldiers valiant hands
Trembled to ſtrike, mov'd with the Majeſty,
And think the Axe *from off the ſacred Tree*
Rebounding back, would their own Bodies wound:
Th' amazement of his Men when Cæſar *found,*
In his bold Hand himſelf an Hatchet *took,*
And firſt of all aſſaults a lofty Oak;

And

And having wounded the religious Tree,
Let no Man fear to fell this Wood (quoth he)
The Guilt of this Offence let Cæsar *bear, &c.* May.

and so he did soon after, carrying ('tis thought) the *Maledictions* of the incensed *Gauls* to his Funeral Pile,

[a] ——*For who,*
The Gods thus injur'd, unreveng'd does go?

18. But lest this be charged with *Superstition*, because the *Instances* are *Heathen*; it was a more noble and remarkable, as well as recent *Example*, when at the Siege of *Breda*, the late famous General *Spinola* commanded his *Army* not to violate a Tree of a certain *Wood* belonging to the Prince of *Orange* there, tho' a reputed *Traytor*, and in open defiance with his Master. In sum, we read, that when *Mithridates* but deliberated about the cutting down of some stately Trees which grew near *Patara*, a City of *Lycia*, tho' necessitated to it for the building of Warlike Engines with them, being terrified in a Vision, he desisted from his purpose. It were to be wished these, or the like Examples, might have wrought some effects upon the sacrilegious *Purchasers*, and disloyal *Invaders* in this Iron-Age amongst us, who have lately made so prodigious a Spoil of those goodly *Forests*, *Woods*, and *Trees* (to gratify an impious and unworthy *Avarice*) which being once the Treasure and Ornament of this *Nation*, were doubtless reserved by our more prudent *Ancestors* for the Repairs of our floating *Castles*, the *Safeguard* and *Boast* of this renowned *Island*, when *Necessity*, or some emminent Peril should threaten it, or call for their Assistance; and not to be devoured by these improvident Wretches, who, to their eternal reproach, did (with the *Royal Patrimony*) swallow likewise *God's own Inheritance*; but those *Sons* and *Grand-children* we have lived to see as hastily disgorge them again; and with it all the rest of their holy *Purchases*, which otherwise they might securely have enjoyed. But this, *in terrorem* only, and for Caution to *Posterity*, whiles we leave the *Guilty*, and those who have done the Mischiefs, to their proper *Scorpions*, and to their *Erisichthonian* Fate, or that of the inexorable *Paræbius*, the vengeance of the *Dryads*, and to their *Tutelar* better *Genius*, if any yet remain, who love the solid *Honour* and *Ornament* of their *Country*: For what could I say less, tho' constrain'd by necessity my self, to cut down so many goodly Trees, and venerable Woods, (devoted to the *Axe* by the *Owner*, who had right to dispose of them before me) Ὑλογενὴς, and * *Wood-born* as I am, in behalf of those sacred *Shades*, which both grace our *Habitations*, and protect our *Nation*? So in all Ages, from Trees have been denominated whole Countries, Regions, Cities and Towns; as *Cyparissa* in *Greece*, *Cerasus* in *Pontus*, *Laurentum* in *Italy*, *Myrrhinus* in *Attica*. Ports, Mountains and eminent Places; as the *Viminalis*, *Æsculetum*, *&c.* The Reason is obvious, from the spontaneous growth and abounding of such Trees in the respective Soils: And hence of old, *Avellana nux*, is called also *Prænestina*, *Ponticam*; *dum unaquæque Natio indit huic*

Quæ tibi factorum pœnas instare tuorum
Vaticinor ——

Vide Met. l. 8. Apollon. l. 2. Argonaut
Prosternit quercum funestam quam sibi Nympha.
Pignoribusque suis fecit ——

* *At* Wotton *in* Surrey.

[a] ——Quis enim læsos impune putaret
Esse Deos——

Nuci

Nuci nomen ex loco in quo naſcitur copioſior: So the *Cheſnut*, called *Heracleotica*, of which ſee *Macrob.* Saturnal. *l.* 3. And *Sylvius* became great and famous Names among the *Latins* and *Romans*: *Sylvius Poſthumus*, the Son of that renowned *Hero Æneus Sylvius*: and in time an *Hereditary* Name among the ſubſequent Kings: *Latinus Sylvius*, *Alba Sylvius*, who built that glorious *City*, which contended with *Rome* her ſelf: And to return to our own Country, *Seven-Oaks* in *Kent* was ſo call'd (as reported) from ſome goodly *Oaks* growing about it, and giving Name alſo to that *Lord Mayor* (a *Foundling* of that Place) and was himſelf the Founder of the firſt *Proteſtant Hoſpital* in *England*, defeated the Inſurrection of *J. Cade*, and his Complices, for which he was Knighted, as he deſerved.

Old *Sarum*, or *Sorbiodunum*, had its Name *à Sorbis*.

Hence alſo from the plenty of *Beech*-Trees does Mr. *Camden* denominate the whole Country of *Buckingham*, *Bukenham* in *Norfolk*; *Buchonia* in *Germany*, *&c.* though indeed the Learned Author of the *Additions* to the late *Edition*, thinks them rather ſo called from the *Saxon Buc* (*Cervus*) a *Buck*, or *Hart*, and this from that in *Norfolk*, where Sir *Henry Spelman* reports there are no ſuch Trees growing; whilſt we yet know not whether there may not formerly have been ſtore: In all events, be it one or the other, it is certain, abundance of Places, Countries and Families have taken their Denomination from Trees.

One thing more I think not impertinent to hint, before I take my leave of this *Book*, concerning the *Uſe* of Standing *Groves*; that in ſome Places of the World, they have no other Water to drink than what their *Trees* afford them; not only of their proper *Juice* (as we have noted) but from their attraction of the *Evening Moiſture*, which impends in the ſhape of a Cloud over them: Such a *Tuft* of Trees is in the *Iſland* of *Ferro*; of which conſult the Learned *Iſaac Voſſius* upon *Pomponius Mela*, and *Magnenus de Manna:* The ſame likewiſe happning in the *Indies*; ſo that if their Woods were once deſtroyed, they might periſh for want of *Rains*; upon which account *Barbadoes* grows every year more *torrid*, and has not near the *Rain* it formerly enjoyed when it was better furniſhed with Trees; and ſo in *Jamaica* at *Gunaboa*, the *Rains* are obſerved to diminiſh, as their *Plantations* extend: The like I could tell you of ſome parts of *England* not far from hence.

And now laſtly, to encourage thoſe to Plant that have opportunity, and thoſe who innocently, and with reluctancy are forced to cut down, and endeavour to ſupply the Waſte with their utmoſt Induſtry: 'Tis obſerved, that ſuch *Planters* are often bleſs'd with *Health* and *Old Age*, according to that of the *Prophet*, *Iſa.* lx. 22. *The days of a Tree are the days of my People*: Inſtances of whoſe extraordinary *Longævity*, we have given abundance in this Diſcourſe; and ſeems to be ſo univerſally remarked, that as *Paulus Venetus* (that great *Traveller*) reports, the *Tartarian Aſtrologers* affirm, nothing contributes more to Mens *Long Lives*, than the planting of many Trees: *Hæc ſcripſi Octagenarius*, and ſhall, if God protract my Years, and continue Health, be continually planting, till it ſhall pleaſe him to *tranſplant* me into thoſe glorious Regions above, the *Celeſtial Paradiſe*, planted with *Perennial Groves* and *Trees*, bearing *Immortal Fruit*; for ſuch is the *Tree of Life*,

BOOK IV. *Life*, which they who do his *Commandments* have *Right* to, *Apoc.* xxii. 2, 14, 20. Ναὶ ἔρχομαι ταχύ, Ἀμὴν, ναὶ, ἔρχου Κύριε Ἰησοῦ, Ἀμήν.

19. Thus my *Reader* ſees, and I acknowledge, how eaſy it is to be loſt in the *Woods*, and that I have hardly power to take off my *Pen* whilſt I am on this delightful *Subject*: For what more *auguſt*, more charming and uſeful, than the *culture* and *preſervation* of ſuch goodly Plantations,

[a] *That ſhade to our Grand-children give?*

and afford ſo ſweet, and ſo agreeable refreſhment to our Induſtrious *Wood-man*,

[b] *When he his wearied Limbs has laid*
Under a florid Platan's Shade.

or ſome other goodly ſpreading Trees, ſuch as we told you ſtopt the *Legions* of a proud *Conqueror*, and that the wiſe *Socrates* ſware by; that *Paſſienus Criſpus* did ſacrifice to, and the honours of his Gods?

20. But whilſt we condemn this *Exceſs* in them, *Chriſtians* and true Philoſophers may be inſtructed to make uſe of theſe *Enjoyments* to better purpoſes, by contemplating the Miracles of their *Production* and *Structure*: And what *Mortal* is there ſo perfect an *Atomiſt*, who will undertake to detect the thouſandth part, or point of ſo *exile* a *Grain*, as that inſenſible Rudiment, or rather *halituous ſpirit*, which brings forth the lofty *Fir-tree*, and the ſpreading *Oak*? That Trees of ſo *enormous* an height and magnitude, as we find ſome *Elms*, *Planes*, and *Cypreſſes*; ſome hard as *Iron*, and ſolid as *Marble* (for ſuch the *Indies* furniſh many) ſhould be ſwadl'd and involv'd within ſo ſmall a dimenſion (if a *Point* may be ſaid to have any) without the leaſt luxation, confuſion or diſorder of Parts, and in ſo weak and feeble a Subſtance; being at firſt but a kind of tender *mucilage*, or rather rottenneſs, which ſo eaſily diſſolves and corrupts *Subſtances* ſo much harder, when they are buried in the moiſt Womb of the Earth; whilſt this, tender and flexible as it is, ſhall be able in time to diſplace and rent in ſunder whole *Rocks* of Stones, and ſometimes to cleave them beyond the force of *Iron Wedges*, ſo as even to remove *Mountains*? For thus no *Weights* are obſerved able to ſuppreſs the victorious *Palm*: And thus our Tree (like *Man* whoſe inverted *Symbol* he is) being ſown in *corruption*, *riſes* in *glory*, by little and little aſcending into an hard erect *Stem* of comely dimenſions, into a ſolid Tower, as it were; and that which but lately a ſingle *Ant* would eaſily have born to his little *Cavern*, now capable of reſiſting the Fury, and braving the Rage of the moſt impetuous Storms, *Magni mehercle artificis, clauſiſſe totum in tam exiguo* (to uſe *Seneca*'s Expreſſion) *& horror eſt conſideranti.* *Epiſt.* 53.

For is it not plainly aſtoniſhing, how theſe minute *Atoms*, rather than viſible *Eggs*, ſhould contain the *Fœtus* exquiſitely formed, even while yet wrap'd in their *Secondines*, like *Infants* in the *Animal* Womb, till growing too big for the dark Confinements, they break forth, and after a while more diſtinctly diſplay every Limb and Member compleatly perfect, with all their Apparel, tire and trim of beautiful and flouriſhing Vegetables, endow'd with all the Qualities of the *Species*.

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[a] ——— Seris factura nepotibus umbram.

[b] Cum poſt labores ſub Platano cubat
Virentis umbræ—— CLAUD.

21. Con-

21. Contemplate we again, what it is which begins the Motion, and kindles the Flame of theſe *Automata*, cauſing them firſt to *radiate* in the *Earth*, and then to diſplay their Top in the *Air*, ſo different *Poles*, (as I may call them) in ſuch different *Mediums*; what it is imparts this *Elaſtic*, *Periſtaltic* and other Motions, ſo very like to the *ſenſible* and perfecteſt *Animal*; how they *elect*, and then *introſume* their proper *food*, and give *ſuck*, as it were, to the yet tender *Infant*, till it have ſtrength and force to prey on, and digeſt the more ſolid *Juices* of the *Earth*; for then, and not till then, do the *Roots* begin to harden: Conſider how they *aſſimilate*, *ſeparate* and *diſtribute* theſe ſeveral Supplies; how they *concoct*, *tranſmute*, *augment*, *produce* and *nouriſh* without ſeparation of *Excrements* (at leaſt to us viſible) and generate their like, whilſt furniſhed with *Tubes*, *Ovaries*, *umbilical* and other *Veſſels*, the *principle* of any *Species*, are ſafely reſerved and nouriſhed till *deliver'd* without violation of *Virginity*: By what exquiſite *percolations* and *fermentations* they proceed; for the *Heart*, *Fibres*, *Veins*, *Nerves*, *Valves* and *Anaſtomotas*, *Rind*, *Branches*, *Leaves*, *Bloſſoms*, *Fruit*; for the *Strength*, *Colour*, *Taſte*, *Odour* and other ſtupendous *Qualities*, and diſtinct *Faculties*, ſome of them ſo repugnant and contrary to others; yet in ſo uniform and ſucceſſive a *ſeries*, and all this performed in the dark, and thoſe ſecret *Receſſes* of *Nature*: With what * *Analogy* the ſolider and inflexible *Texture* of Parts of Trees agree with the *Bones*, *Ribs*, *Vertebræ*, *&c.* nay, with the very *Brains* and *Marrow*, and the more *pliables*, fitted to ſuch various Motions, have induced ſome to allow them place among the *Claſs* of *Animals*, is aſtoniſhing: To theſe, and for their preſervation, *Nature* has inveſted the whole Tribe and Nation (as we may ſay) of *Vegetables*, with *Garments* ſuitable to their naked and expoſed Bodies, Temper and Climate: Thus ſome are clad with a courſer, and reſiſt all extremes of Weather; others with more tender and delicate *Skins* and *Scarfs* as it were, and thinner Rayment. *Quid Foliorum deſcribam diverſitates?* What ſhall we ſay of the *myſterious* Forms, *Variety* and *Variegation* of the *Leaves* and *Flowers*, contrived with ſuch Art, yet without Art; ſome *round*, others *long*, *oval*, *multangular*, *indented*, *criſped*, *rough*, *ſmooth* and *poliſhed*, *ſoft* and *flexible* at every tremulous Blaſt, as if it would drop in a moment, and yet ſo obſtinately adhering, as to be able to conteſt againſt the fierceſt Winds, that proſtrate mighty Structures, reſiſting *Hurricanes*, the violence whereof whole *Fleets* and *Countries* do often feel; yet, I ſay, continually making War, and ſometimes joining Forces with ſteeming Showers, againſt the poor *Leaf*, tied on by a ſlender *Stalk*! there it abides till God bids it fall: For ſo the *wiſe Diſpoſer* of Things has plac'd it, not only for *Ornament*, but *Uſe* and *Protection* both of *Body* and *Fruit*, from the exceſſive Heat of Summer, and Colds even of the ſharpeſt Winters, and their immediate Impreſſions; as we find it in all ſuch Places and Trees, as like the *Bleſſed* and *Good Man*, have always *Fruit* upon them, *ripe*, or preparing to mature; ſuch as the *Pine*, *Fir*, *Arbutus*, *Orange*, and moſt of thoſe which the *Indies* and more *Southern* Tracts plentifully abound in, where *Nature* provides this continual Shelter, and cloaths them with perennial Garments.

* *See* Scaliger *Exerc.* 14. *of reſpondent Parts within and without, from Head to Foot.*

But with what amazement do we conſider what may be demonſtrated of the innumerable (and next to *Infinite*) number of *Seeds*, which in a young *Elm* (for Inſtance) it would amount, during the ordinary

Age

Book IV. Age of that *Species*; which ſuppoſe to be but One Hundred Years ſtanding, it has in it 154800000000 Seeds, and the Tree grow and multiply, as many times, every individual *Grain* contain a *ſecond* Tree, including the like number, and ſo *on* by *Geometrical* progreſſion in *Squares* and *Cubes*, *&c.* At what a loſs muſt the moſt enlarged Human Capacity be at ſo ſtupendous a Conſideration!

One ſingle Seed of *Tobacco* would produce 129600000000000, *&c.* and every one of theſe how many more, let thoſe who have leiſure compute.

22. Let us again examine with what care the Seeds, thoſe little *Souls* of Plants, *Quorum exilitas* (as one ſays) *vix locum inveniat* (in which the whole and compleat Tree, though inviſible to our dull Senſe, is yet perfectly and entirely wrapp'd up) are preſerved from *avolation*, diminution and detriment; expos'd, as they ſeem to be, to all thoſe Accidents of *Weather*, *Storms*, and *Rapacious* Birds, in their ſpiny, arm'd and compacted *Receptacles*; where they *ſleep* as in their *Cauſes*, till their Priſons let them gently fall into the Embraces of the *Earth*, now made pregnant with the *Seaſon*, and ready for another *Burthen*: For at the time of Year ſhe fails not to bring them forth. And with what delight have I beheld this tender and innumerable Off-ſpring, *repullulating* at the *Feet* of an aged Tree! from whence the *Suckers* are drawn, tranſplanted and educated by Human *Induſtry*, and forgetting the *Ferity* of their *Nature*, become *civiliz'd* to all his *Employments*.

23. Can we look on the prodigious quantity of *Liquor*, which one poor wounded *Birch* will produce in a few Hours, and not be aſtoniſhed how ſome Trees ſhould in ſo ſhort a ſpace, *weep* more than they *weigh*? And that ſo dry, ſo feeble and wretched a *Branch*, as that which bears the *Grape*, ſhould yield a *Juice* that *chears both God and Man*? That the *Pine*, *Fir*, *Larch*, and other *Reſinous* Trees, planted in ſuch rude and uncultivated Places, amongſt *Rocks* and dry *Pumices*, ſhould *tranſude* into *Turpentine*, and pearl out into *Gums*, and precious *Balms*?

In a word, ſo aſtoniſhing and wonderful is the *Organiſm*, Parts and Functions of *Plants* and *Trees*; as ſome have, as we ſaid, attributed *Animal* Life to them, and that they were *living Creatures*; for ſo did *Anaxagoras*, *Empedocles*, and even *Plato* himſelf.

* Vide *Petri Mangot Botan. Monſpel.*

I am ſure *Plants* and *Trees* afford more Matter for * *Medicine*, and the uſe of *Man*, than either *Animals* and *Minerals*, or any *Exotic* we have beſides; are more familiar at hand, and ſafe; and within this late *Age* wonderfully improv'd, increaſed and ſearched into, and ſeems by the *Divine Wiſdom*, to be an *inexhauſtible* Subject for our diſquiſition and admiration.

24. There are Ten Thouſand Conſiderations more, beſides that of their *Medicinal* and *Sanative* Properties, and the *Mechanical Uſes* mention'd in this *Treatiſe*, which a *Contemplative* Perſon may derive from the *Groves* and *Woods*; all of them the Subject of Wonder. And though he had only the *Palm*, (which † *Strabo* affirms is fit for Three Hundred and Sixty Uſes;) or the *Coco*, which yields *Wine*, *Bread*, *Milk*, *Oyl*, *Sugar*, *Salt*, *Vinegar*, *Tinctures*, *Tanns*, *Spices*, *Thread*, *Needles*, *Linnen*, and *Cloth*, *Cups*, *Diſhes*, *Spoons*, and other *Veſſels* and *Utenſils*; *Baskets*, *Mats*, *Umbrellas*, *Paper*, *Brooms*, *Ropes*, *Sails*, and almoſt all that belongs to the *Rigging* of *Ships*. In ſhort, this ſingle Tree furniſhing a great Part of the World with

* *Vide* Mr. *Dodart's* Hiſt. *de l'Academ. Scient.*

with all that even a *Voluptuous Man* can need, or almoſt deſire; it were ſufficient to employ his *Meditations* and his *Hands*, as long as he were to live, though his Years were as many as the moſt aged *Oak*: So as *Fr. Hernander*, *Gracilaſco de la Urga*, and other * *Travellers*, ſpeaking of the *Coco*, *Aloes*, *Wild-Pine* of *Jamaica*, *&c.* affirm there is nothing neceſſary for Life (*ſi eſſet rebus humanis modus*), which theſe *Polycreſts* afford not.

* *Vide* Ray H. Pl. L. xxi. c. 7.

What may we ſay then of innumerable other Trees, fitted for the Uſes Nature has deſigned them, eſpecially for Timber, and all other *Fabrile Employments*? But I ceaſe to expatiate farther on theſe *Wonders*, that it may not *anticipate* the Pleaſures which the ſerious *Contemplator* on thoſe ſtupendous Works of *Nature*, (or rather *God* of Nature) will find himſelf even *Rapt'd* and *Tranſported*, were it only applied to the production of a ſingle *Wood*.

Let the further *Curious*, or thoſe who may take theſe *Wonders* for a florid *Epiphonema* only of this *Work*, add to the moſt Ancient *Naturaliſts*, what they will find improved on this ample Subject, in the late excellently Learned and Judicious *Malphigius*, *Grew*, *Ray*, *Senertus*, *Faber*, and others who have defin'd theſe aſtoniſhing Operations of *Nature*, *Cauſes* and *Effects*, with the greateſt and exacteſt ἀκρίβεια imaginable. But a *Wiſe* and a *Thinking Man* can need none of theſe *Topics*; in every *Hedge*, and every *Field* they are before him; and yet we do not admire them becauſe they are common and obvious: Thus we fall into the juſt *Reproach* given by one of the *Philoſophers* (introduced by the *Orator*) to thoſe who ſlighted what they ſaw *every Day*, becauſe *they every Day ſaw them*: *Quaſi Novitas nos magis quam magnitudo rerum, debeat ad exquirendas cauſas excitare*: As if *Novelty* only ſhould be of more force to engage our Enquiry into the *Cauſes* of Things, than the *Worth* and *Magnitude* of the Things themſelves.

Cic. de Nat. Deor. l. 2.

I conclude this *Book*, and whole Diſcourſe, with that incomparable *Poem* of *Rapinus*, as epitomizing all we have ſaid.

I cannot therefore but wonder, that excellent *Piece*, (ſo *elegant*, *pleaſant* and *inſtructive*) ſhould be no more enquired after.

RENATI RAPINI. S. J. HORTORUM *Lib.* II.
NEMUS.

Me nemora, atque omnis nemorum pulcherrimus ordo
Et ſpacia, umbrandum late fundenda per hortum
Invitant, &c.

Thus made *Engliſh* by my late Son *Evelyn.*

LOng Rows of *Trees* and *Woods* my Pen invite,
With ſhady *Walks*, a *Garden*'s chief delight:
For nothing without them is pleaſant made:
They Beauty to the ruder Country add.
Ye Woods and ſpreading Groves afford my Muſe
That Bough, with which the Sacred Poets uſe
T' adorn their Brows; that by their Pattern led,
I with due Laurels may impale my Head.

Methinks the Oaks their willing Tops incline;
Their trembling Leaves applauding my Deſign;
With joyful Murmurs, and unforc'd aſſent,
The Woods of *Gaul* accord me their conſent.
Citharon I, and *Menalus* deſpiſe,
Oft grac'd by the *Arcadian* Deities;
I, nor *Molorcus*, or *Dodona*'s Grove,
Or thee crown'd with Black Oaks, *Calidne* love;

Cyllene thick with Cypreſs too I fly;
To *France* alone my *Genius* I apply,
Where noble Woods in ev'ry part abound,
And pleaſant Groves commend the fertile Ground.
If on thy Native Soil thou doſt prepare
T' erect a *Villa*, you muſt place it there,
Where a free Proſpect do's it ſelf extend
Into a Garden, whence the Sun may lend
His influence from the *Eaſt*; his radiant heat
Should on your Houſe through various windows beat;
But on that ſide which chiefly open lies
To the North-wind, whence ſtorms and ſhow'rs ariſe,
There plant a *Wood*; for, without that defence,
Nothing reſiſts the Northern Violence.
While with deſtructive Blaſts o're Clifts and Hills
Rough *Boreas* moves, and all with Murmurs fills;
The Oak with ſhaken Boughs on Mountains rends,
The Valleys roar, and great *Olympus* bends.
Trees therefore to the Winds you muſt expoſe,
Whoſe Branches beſt their pow'rful Rage oppoſe.
Thus Woods defend that part of *Normandy*,
Which ſpreads it ſelf upon the *Britiſh* Sea.
Where Trees do all along the Ocean ſide
Great Villages and Meadows too divide.
But now the Means of raiſing Woods I ſing;
Tho' from the Parent Oak young ſhoots may ſpring,
Or may tranſplanted figuriſh, yet I know
No better means than if from Seed they grow.
'Tis true this way a longer time will need,
And Oaks but ſlowly are produc'd by Seed;
Yet they with far the happier Shades are bleſt;
For thoſe that riſe from Acorns, as they beſt
With deep-fixt roots beneath the Earth deſcend;
So their large Boughs into the Air aſcend.
Perhaps becauſe, when we young Sets tranſlate,
They loſe their Virtue, and degenerate:
While Acorns better thrive; ſince from their birth
They have been more acquainted with the Earth.
Thus we to Woods by Acorns Being give;
But yet before the Ground your Seed receive,
To dig it firſt employ your Labourer;
Then level it; and if young ſhoots appear
Above the Ground, ſprung from the cloven Bud;
If th' Earth be planted in the Spring, 'tis good
Thoſe Weeds by frequent Culture to remove;
Whoſe Roots would to the Bloſſom hurtful prove.
Nor think it labour loſt to uſe the Plough;
By Dung and Tillage all things fertile grow.
There are more ways than one to plant a Grove,
For ſome do beſt a rude confuſion love;
Some into even ſquares diſpoſe their Trees,
Where ev'ry ſide do's equal Bounds poſſeſs:
Thus Boxen Legions with falſe Arms appear
At Cheſs, and repreſent a face of War.
Which ſport to *Schaccia* the *Italians* owe;
The painted Frames alternate colours ſhow.
So ſhould the Field in ſpace and form agree;
And ſhould in equal Bounds divided be.
Whether you plant young Sets, or Acorns ſow,
Still Order keep; for ſo they beſt will grow.
Order to ev'ry Tree like Vigor gives,
And room for the aſpiring Branches leaves.
When with the Leaf your hopes begin to bud,
Baniſh all wanton Cattle from the Wood.
The browzing Goat the tender Bloſſoms kills;
Let the ſwift Horſe then neigh upon the Hills,
And the free Herds ſtill in large Paſtures tread;
But not upon the new-ſprung Branches feed.
For whoſe Defence Incloſures ſhould be made
Of Twigs, or Water into Rills convey'd.
When ripening Time has made your Trees dilate,
And the ſtrong Roots do deeply penetrate,
All the ſuperfluous Branches muſt be fell'd,
Leſt the oppreſſed Trunk ſhould chance to yield
Under the weight, and ſo its Spirits loſe
In ſuch Excreſcencies. But as for thoſe
Which from the Stock you cut, they better thrive;
As if their Ruin caus'd them to revive.
And the ſlow Plant, which ſcarce advanc'd its Head,
Into the Air its leavy Boughs will ſpread.
When from the faſtned Root it ſprings amain,
And can the fury of the North ſuſtain;
On the ſmooth Bark the Shepherds ſhould indite
Thir Rural Strifes, and there their Verſes write.
But let no impious Axe prophane the Woods,
Or violate the ſacred Shades; the Gods
Themſelves inhabit there. Some have beheld
Where drops of Blood from wounded Oaks diſtill'd
Have ſeen the trembling Boughs with horror ſhake!
So great a Conſcience did the Ancients make
To cut down Oaks, that it was held a Crime
In that obſcure and ſuperſtitious Time,
For *Driopeius* Heaven did provoke,
By daring to deſtroy th' *Æmonian* Oak;
And with it it's included *Dryad* too:
Avenging *Ceres* here her Faith did ſhow
To the wrong'd Nymph; while *Eriſichthon* bore
Torments, as great as was his Crime before.
Therefore it well might be eſteem'd no leſs
Than Sacrilege, when ev'ry dark receſs,
The awful ſilence, and each gloomy ſhade,
Was ſacred by the zealous Vulgar made.
When e're they cut down Groves, or ſpoil'd the Trees;
With Gifts the Ancients *Pales* did appeaſe.
Due Honours once *Dodona*'s Foreſt had,
When Oracles were through the Oaks convey'd.
When Woods inſtructed Prophets to foretell,
And the Decrees of Fate in Trees did dwell.
If the aſpiring Plant large Branches bear,
And Beeches with extended Arms appear;
There near his Flocks upon the cooler Ground
The Swain may lie, and with his Pipe reſound
His Loves; but let no Vice theſe Shades diſgrace
We ought to bear a Rev'rence to the Place.
The Boughs, th' unbroken ſilence of a Wood,
The Leaves themſelves demonſtrate that ſome God
Inhabits there, whoſe Flames might be ſo juſt,
To burn thoſe Groves that had been fir'd by Luſt.
But through the Woods while thus the Ruſticks ſport,
Whole flights of Birds will thither too reſort;
Whoſe diff rent Notes and Murmurs fill the Air:
Thither ſad *Philomela* will repair;
Once to her Siſter ſhe complain'd, but now
She warbles forth her grief on every Bough;
Fills all with *Tereus* Crimes, her own hard Fate;
And makes the melting Rocks compaſſionate.
Diſturb not Birds which in your Trees abide,
By them the Will of Heaven is ſignify'd;
How oft from hollow Oaks the boading Crow,
The Winds and future Tempeſts do's foreſhow!
Of theſe the wary Plowman ſhould make uſe;
Hence Obſervations of his own deduce;
And ſo the changes of the Weather tell.
But from your Groves all hurtful Birds expel.
When e're you plant, through Oaks your Beech diffuſe;
The hard Male-Oak, and lofty *Cerrus* chuſe.
While *Eſculus* of the Maſt-bearing kind,
Chief in *Ilicean* Groves we always find.
For it affords a far extending ſhade;
Of one of theſe ſometimes a Wood is made.
They ſtand unmov'd, though Winter do's aſſail,
Nor more can Winds, or Rain, or Storms prevail.
To their own Race they ever are inclin'd,
And love with their Aſſociates to be joyn'd.
When Fleets are rigg'd, and we to fight prepare,
They yield us Plank, and furniſh Arms for War.

Fuel

Fuel to Fire, to Plowmen Ploughs they give,
To other Uſes we may them derive.
But nothing muſt the ſacred Tree prophane:
Some Boughs for Garlands from it may be ta'en
For thoſe whoſe Arms their Country-men preſerve,
Such are the Honours which the Oaks deſerve.
We know not certainly whence firſt of all
This Plant did borrow its Original.
Whether on *Ladon* or on *Mænalus*
It grew, if fat *Chaonia* did produce
It firſt. But better from our Mother-Earth,
Than Modern Rumours we may learn their birth.
When *Jupiter* the World's Foundation laid,
Great Earth-born Gyants Heaven did invade,
And *Jove* himſelf, (when theſe he did ſubdue,)
His Lightning on the factious Brethren threw.
Tellus her Sons Misfortunes do's deplore;
And while ſhe cheriſhes the yet-warm Gore
Of *Rhœcus*, from his monſtrous Body grows
A vaſter Trunk, and from his Breaſt aroſe
A hardned Oak, his Shoulders are the ſame,
And Oak his high exalted Head became.
His hundred Arms which lately through the Air
Were ſpread, now to as many Boughs repair.
A ſevenfold Bark his now ſtiff trunk does bind;
And where the Gyant ſtood, a Tree we find.
The Earth to *Jove* ſtraight conſecrates this Tree,
Appeaſing ſo his injur'd Deity;
Then 'twas that Man did the firſt Acorns eat.
Although the Honour of this Plant be great,
Both for its ſhade, and that it ſacred is;
Yet when its Branches ſhoot into the Skies,
Let them take heed, while with his brandiſh'd Flame,
The Thund'rer rages, ſhaking Natures Frame,
Leſt they be blaſted by his pow'rful hand,
While Tamariſks ſecure, and Myrtles ſtand.
The other parts of Woods I now muſt ſing;
With Beech, and Oak, let Elm and Linden ſpring.
Nor may your Groves the Alder-tree diſdain,
Or Maple of a double-colour'd grain.
The fruitful Pine, which on the Mountain ſtands,
And there at large its noble front expands;
Thick-ſhooting Hazel, with the Quick-beam ſet,
The Pitch-tree, Withy, Lotus ever wet;
With well made Trunk here let the Cornel grow,
And here *Orician Terebinthus* too;
And warlike Aſh: But Birch and Yew repreſs.
Let Pines and Firs the higheſt Hills poſſeſs:
Brambles and Brakes fill up each vacant ſpace
With hurtful Thorns; in your Fields Walnuts place,
And hoary Junipers, with Chuſnuts good,
With Hoops to barrel up *Lycæus* Blood.
The difference which in planting each is found,
Now learn; ſince th'Elm with happy Verdure's crown'd;
Since its thick Branches do themſelves extend,
And a fair Bark do's the tall Trunk commend;
With rows of Elm your Garden or your Field
May be adorn'd, and the Sun's heat repell'd.
They beſt the borders of your Walks compoſe;
Their comely green ſtill ornamental ſhows.
On a large Flat continued ranks may riſe,
Whoſe length will tire our Feet, and bound our Eyes.
The Gardens thus of *Fontainbleau* are grac'd,
By ſpreading Elms, which on each ſide are plac'd.
Where endleſs Walks the pleas'd Spectator views,
And ev'ry turn the verdant Scene renews.
The ſage *Corycian* thus his native Field,
Near ſwift *Oebalian Galeſus* till'd.
A thouſand ways of planting Elms he found;
With them he would ſometimes incloſe his Ground;
Oft in directer Lines to Plant he choſe;
From one vaſt Tree a num'rous offspring roſe.
Each younger Plant with its old Parent vies,
And from its Trunk like Branches ſtill ariſe.
They hurt each other if too near they grow;
Therefore to all a proper ſpace allow.
The *Thracian Bard* a pleaſing Elm-tree choſe,
Nor thought it was below him to repoſe
Beneath its ſhade, when he from Hell return'd,
And for twice-loſt *Eurydice* ſo mourn'd.
Hard by cool *Hebrus Rhodop'* does aſpire;
The Artiſt, here, no ſooner touch'd his Lyre,
But from the ſhade the ſpreading Boughs drew near,
And the thick Trees a ſudden Wood appear.
Holm, Withy, Cypreſs, Plane Trees thither preſt;
The prouder Elm advanc'd before the reſt;
And ſhewing him his Wife, the Vine, adviſ'd,
That Nuptial Rites were not to be deſpiſ'd.
But he the Counſel ſcorn'd, and by his hate
Of Wedlock, and the Sex, incurr'd his Fate.
High ſhooting *Linden* next exacts your care;
With grateful Shades to thoſe who take the Air.
When theſe you plant, you ſtill ſhould bear in mind
Philemon and chaſte *Baucis*; Theſe were joyn'd
In a poor Cottage, by their pious Love,
Whoſe ſacred Ties did no leſs laſting prove,
Than Life it ſelf. They *Jove* once entertain'd,
And by their kindneſs ſo much on him gain'd;
That, being worn by Time's devouring rage,
He chang'd to Trees their weak and uſeleſs Age.
Though now transform'd, they Male and Female are;
Nor did their change ought of their Sex impair.
Their Timber chiefly is for Turners good;
They ſoon ſhoot up, and riſe into a Wood.
Reſpect is likewiſe to the Maple due,
Whoſe Leaves, both in their figure, and their hue,
Are like the *Linden*; but it rudely grows,
And horrid wrinkles all its Trunk incloſe.
The Pine, which ſpreads it ſelf in ev'ry part,
And from each ſide large Branches does impart,
Adds not the leaſt perfection to your Groves;
Nothing the glory of its Leaf removes.
A noble Verdure ever it retains,
And o'er the humbler Plants it proudly reigns.
To the God's Mother dear; for *Cybele*
Turn'd her beloved *Atys* to this Tree.
On one of theſe, vain-glorious *Marſyas* died,
And paid his Skin to *Phœbus* for his Pride.
A way of boring holes in Box he found,
And with his artful Fingers chang'd the ſound.
Glad of himſelf, and thirſty after Praiſe,
On his ſhrill Box he to the Shepherds plays.
With thee, *Apollo*, next he will contend;
From thee all Charms of Muſick do deſcend.
But the bold Piper ſoon receiv'd his Doom;
(*Who ſtrive with Heaven never overcome.*)
A ſtrong-made Nut their Apples fortifies,
Againſt the Storms which threaten from the Skies.
The Trees are hardy, as the Fruits they bear,
And where rough Winds the rugged Mountains tear,
There flouriſh beſt; the lower Vales they dread,
And languiſh if they have not room to ſpread.
Hazle diſpers'd in any place will live;
In ſtony Grounds wild Aſh, and Cornel thrive;
In more abrupt Receſſes theſe we find,
Spontaneouſly expos'd to Rain and Wind.
Alder, and Withy, chearful Streams frequent,
And are the Rivers only Ornament.
If ancient Fables are to be believ'd,
Theſe were Aſſociates heretofore, and liv'd
On fiſhy Rivers, in a little Boat,
And with their Nets their painful Living got.
The Feſtival approach'd; with one conſent
All on the Rites of *Pales* are intent;
While theſe unmindful of the Holy-day,
Their Nets to dry upon the Shore diſplay.
But Vengeance ſoon th' Offenders overtook,
Perſiſting ſtill to labour in the Brook.

The angry Goddeſs fix'd them to the Shore,
And for their fault doom'd them to work no more.
Thus to eternal Idleneſs condemn'd;
They felt the weight of Heaven, when contemn'd.
The moiſture of thoſe Streams by which they ſtand,
Endues them both with power to expand
Their Leaves abroad; Leaves, which from Guilt look pale;
In which the never-ceaſing Frogs bewail.
Let lofty Hills, and each declining Ground,
(For there they flouriſh) with tall Firs abound.
Layers of theſe cut from ſome ancient Grove,
And buried deep in Mould, in time will move
Young Shoots above the Earth, which ſoon diſdain
The Southern Blaſts, and launch into the Main.
But in more even Fields the Aſh delights,
Where a good Soil the gen'rous Plant invites.
For from an Aſh, which *Pelion* once did bear,
Divine *Achilles* took that happy Spear
Which *Hector* kill'd; and in their Champion's Fate
Involv'd the Ruin of the *Trojan* State.
The Gods were kind to let brave *Hector* die
By Arms, as noble as his Enemy.
Aſh, like the ſtubborn Heroe in his end,
Always reſolves rather to break than bend.
Some Tears are due to the *Heliades*;
Thoſe many which they ſhed deſerve no leſs.
Griev'd for their Brother's Death, in Woods they range,
And worn with ſorrow, into Poplars change.
By which their Grief was rendred more divine,
While all their Tears in precious Amber ſhine.
Theſe, with your other Plants, ſtill propagate;
'Tis true indeed they are appropriate
To *Italy* alone, and near the *Po*,
Who gave them their firſt Being, beſt they grow.
Into your Foreſts ſhady Poplars bring,
Which from their Seed with equal vigour ſpring.
Rich Groves of Ebony let *India* ſhow;
Judæa Balſoms which in *Gilead* flow;
Perſia from Trees her ſilken Fleeces comb;
Arabia furniſh the *Sabæan* Gum;
Whoſe Odours ſweetneſs to our Temples lend,
And at the Altar with our Pray'rs aſcend:
Yet I the Groves of *France* do more admire,
Which now on Meads, and now on Hills aſpire.
I not the Wood-Nymph, nor the Pontick Pine
Eſteem, which boaſts the ſplendor of its Line;
Or thoſe which old *Lycæum* did adorn;
Or Box on the *Cytorian* Mountain born;
Th' *Idæan* Vale, or *Erimanthian* Grove,
In me no reverence, no horror move;
Since I no Trees can find ſo large, ſo tall,
As thoſe which fill the ſhady Woods of *Gaul*.
When from the cloven Bud young Boughs proceed,
And the Maſt-bearing Trees their Leaves do ſpread;
The Peſtilential Air oft vitiates
The Seaſons of the Year, and this creates
Whole ſwarms of Vermin, which the Leaves aſſail,
And on the Woods in num'rous Armies fall.
Creatures in different ſhapes together joyn'd,
The horrid Eruc's, Palmer-worm deſign'd
With its peſtif'rous Odours to annoy
Your Plants, and their young Off-ſpring to deſtroy:
Remember then to take theſe Plagues away,
Leſt they break out in the firſt Show'rs of *May*.
From planting new, and lopping aged *Trees*,
The prudent Ancients bid us never ceaſe:
Thus no decay is in our *Foreſts* known;
But in their Honour we preſerve our own.
Thus in your Fields a ſudden Race will riſe,
Which in your *Nurſeries* will yield ſupplies;
That may again ſome drooping *Grove* renew:
For Trees, like Men, have their Succeſſions too.
Their ſolid Bodies *Worms* and *Age* impair,
And the vaſt Oak *gives place to his next Heir.*
While ſuch Deſigns employ your vacant hours,
As ordering your *Woods* and ſhady *Bow'rs*;
Deſpiſe not humbler Plants, for they no leſs
Than *Trees*, your *Gardens* Beauty do increaſe.
With what content we look on *Myrtle Groves!*
On *Verdant Laurels!* There's no Man but loves
To find his *Limon*, with *Acanthus*, thrive.
To ſee the lovely *Philyrea* live,
With *Oleander*. Ah! to what delights
Shorn *Cypreſs*, and ſweet *Jeſſamine* invites.
If any Plain be near your *Garden* found,
With *Cypreſs*, or with *Horn-beam*, hedge it round.
Which in a thouſand Mazes will conſpire,
And to Receſſes unperceiv'd retire.
Its Branches, like a Wall, the Paths divide;
Affording a freſh Scene on every ſide.
'Tis true, that it was honour'd heretofore;
But Order quickly made it valued more.
By its ſhorn Leaves, and thoſe Delights which roſe
From the diſtinguiſh'd Forms in which it grows,
To ſome cool *Arbour*, by the Ways deceit,
Allur'd, we haſte, or ſome oblique Retreat:
Where underneath its umbrage we may meet
With ſure defence againſt the raging heat.
Though *Cypreſſes* contiguous well appear;
They better ſhew if planted not ſo near.
And ſince to any ſhape, with eaſe, they yield,
What Bound's more proper to divide a Field?
Repine not *Cypariſſus*, then in vain;
For by your change you glory did obtain.
Sylvanus and this Boy with equal fire
Did heretofore a lovely *Hart* admire;
While in the cooler Paſtures once it fed,
An *Arrow* ſhot at Random, ſtruck it dead.
But when the Youth the dying Beaſt had found,
And knew himſelf the Author of the wound,
With never-ceaſing ſorrow he laments,
And on his Breaſt his grief and anger vents.
Sylvanus mov'd with the poor Creature's Fate,
Converts his former love to preſent hate.
And no more pity in his angry Words,
Than to himſelf th' afflicted Youth affords.
Weary of life, and quite oppreſt with woe,
Upon the Ground his Tears in Channels flow:
Which having water'd the productive Earth,
The *Cypreſs* firſt from thence deriv'd its birth,
With *Sylvan*'s aid; nor was it only meant
T' expreſs our ſorrow, but for ornament.
Chiefly when growing low your Fields they bound,
Or when your Gardens *Avenues* are crown'd
With their long Rows; ſometimes it ſerves to hide
Some Trench declining on the other ſide.
Th' unequal Branches always keep that green,
Of which its Leaves are ne're diveſted ſeen.
Tho' ſhook with Storms, yet it unmov'd remains,
And by its trial greater Glory gains.
Let *Phillyrea* on your Walls be plac'd,
Either with Wire, or ſlender Twigs made faſt:
Its brighter Leaf with proudeſt *Arras* vies,
And lends a pleaſing Object to our Eyes.
Then let it freely on your Walls aſcend,
And there its native Tapiſtry extend.
Nor knows he well to make his Garden ſhine
With all delights, who fragrant *Jaſſamine*
Neglects to cheriſh, wherein heretofore
Induſtrious Bees laid up their precious ſtore.
Unleſs with Poles you fix it to the Wall,
Its own deceitful Trunk will quickly fall.
Theſe Shrubs, like wanton Ivy, ſtill mount high,
But wanting ſtrength on other Props rely.

The

The pliant Branches which they always bear,
Make them with eaſe to any thing adhere.
The pleaſing Odors which their Flow'rs expire,
Make the young Nymphs and Matrons them deſire:
Thoſe to adorn themſelves withal; but theſe
To grace the Altars of the Deities.
With foreign *Jaſſemine* be alſo ſtor'd,
Such as *Iberian* Valleys do afford:
Thoſe which we borrow from the *Portugueze*;
With them which from the *Indies* o're the Seas
We fetch by Ship; in each of which we find
A difference of Colour, and of Kind.
Though gentle *Zephyrus* propitious proves,
And welcome Spring the rigid Cold removes;
Haſte not too ſoon this tender Plant t' expoſe,
Your Garden's Glory; the raſh Primroſe ſhows
Delay is better; ſince they oft are loſt,
By venturing too much into the Froſt.
The cruel Blaſts which come from the *North* Wind,
To over-haſty Flow'rs are ſtill unkind.
Let others ills create this good in you,
Without Deliberation nothing do.
For this will ſcarce the open Air endure,
Till by ſufficient warmth it is ſecure.
No Tree your Gardens, or your Fountains more
Adorns, than what th' *Atlantick* Apples bore.
A deathleſs Beauty crowns its ſhining Leaves,
And to dark Groves its Flower Luſtre gives.
Beſides the Splendor of its golden Fruit,
Of which the Boughs are never deſtitute;
This gen'rous Shrub in Caſes then diſpoſe,
Made of ſtrong Oak, theſe little Woods compoſe;
Whoſe gilded Fruits, and Flow'rs which never fade,
A grace to th' Country and your Garden add,
Proud of the Treaſures Nature has beſtow'd.
When ſnowy Flow'rs the ſlender Branches load,
And ſtraying Nymphs to gather them prepare,
Moleſt them not, but let your Wife be there;
Your Children, all your Family employ,
That ſo your Houſe its Odors may enjoy:
That with ſweet Garlands all may ſhade their Brows;
For in their Flow'rs theſe Plants their vigor loſe.
Suffer the Nymphs to crop luxuriant Trees,
And with their fragrant Wreaths themſelves to pleaſe.
Such ſoft Delights they love; then let them ſtill,
With their freſh-gather'd Fruit their Boſoms fill.
Theſe Apples *Atalanta* once betray'd;
They, and not Love, o'recame the cruel Maid.
Theſe were the golden Balls which ſlack'd her pace,
And made her loſe the Honour of the Race.
But theſe ſweet Smells, and pleaſant Shades will ceaſe,
Nor longer be your Gardens happineſs;
Unleſs the hoſtile Winter be repreſs'd,
And thoſe ſtrong Blaſts ſent from the ſtormy *Eaſt*.
Wherefore to hinder theſe from doing Harm,
You muſt your Trees with Walls defenſive Arm.
To ſuch warm Seats they ever are inclin'd,
Where they avoid the Fury of the Wind.
Theſe Plants, beſides that they this Cold would ſhun,
Look for th' *Aſſyrian*, and the *Median* Sun.
In parched *Africa* they flouriſh more,
Than if they grow by *Strimon*'s Icy Shore.
Leſt then the Froſt, or barb'rous *North* ſhould blaſt
Your *Flow'rs*, while all the Sky is over-caſt
With duskiſh Clouds, Sheds ſet apart prepare,
To guard them from the Winter's piercing Air:
Till the kind Sun theſe Tempeſts does diſperſe,
And with his Influence chears the Univerſe.
Then calmer Breezes ſhall o'er Storms prevail,
And your freſh *Groves* ſhall ſweet Perfumes exhale.
Theſe *Trees* are various, and the *Fruits* they bear,
Are diff'rent too. The *Limons* always are
Of oval Figure, underneath whoſe Rind,
A Juice ungrateful to our Taſte we find.
But though at firſt our Palates it diſpleaſe,
Yet better with our Stomach it agrees.
Others leſs ſharp do in *Hetruria* ſpring;
Some, that are mild, from *Portugal* we bring.
Another ſort from old *Aurantia* came,
To which that City does impart its Name.
Hard by *Dircæon Aracynthus* lies
This ancient Town; the *Orange* hence does riſe.
To which in Rind and Juice the *Limons* yield.
By each new Soil new Taſtes are oft inſtill'd.
Mind not the Fables by the *Grecians* told,
Of the *Heſperian* Siſters, who of old
On vaſt Mount *Atlas*, near the *Libyan* Sea,
With greateſt Care did cultivate this *Tree*:
Of fierce *Alcides*, who by Force brake in,
And in the Spoils of the *Nemean* Skin;
And from the *Dragon*, who ſecurely ſlept,
Stole, with Succeſs, the Apples which he kept.
Return'd to the *Aventine*, he ſets that Hill
With *Orange-trees*, which *Italy* now fill.
But Things of greater Moment are behind;
For Purple *Oleander* may be join'd
With *Oranges*, and *Myrtles*; each of theſe
Peculiar Graces of their own poſſeſs.
The *Myrtle* chiefly, which, if Fame ſays true,
From the God's Bounty its beginning drew.
When *Venus* plac'd it in the pleaſant Shade
Of the *Idean* Vales, about it play'd
Whole Troops of wanton *Cupids*, while the Night
Was clear, and *Cynthia* did diſplay her Light.
This *Citherea* above all prefers,
And by tranſcendent Favour made it hers.
With *Myrtle*, hence, the wedded Pair delights
To crown their Brows at *Hymenæal* Rites.
Hence *Juno*, who at Marriages preſides,
For Nuptial Torches always theſe provides.
Eriphyle, ſad *Procris*, *Phædra* too,
And all thoſe Fools, who in *Elyſium* wooe,
Honour this Plant, and under *Myrtle Groves*,
If after Death they laſt, recount their Loves.
Proud Victors with its Boughs themſelves adorn,
While round their Temples Wreaths with it are worn.
Tudertus, when the vanquiſh'd *Sabines* fled,
Plac'd one of theſe on his triumphant Head.
The Trunk is humble, and the Top as low,
On which ſoft Leaves and curled Branches grow.
Its grateful Smell, and Beauty ſo exact,
Th' admiring Nymphs from ev'ry Part attract.
If too much Heat, or ſudden Cold ſurprize,
Which are alike the *Myrtles* Enemies;
You muſt avoid them both, and quickly place
The tender Plant within a Wooden-Caſe.
Sheds may protect them, if the Cold be great,
Or watring from the Summer's ſcorching Heat;
No impious Tool, our Tenderneſs allows
To fell theſe *Groves*, nor Cattel here muſt browſe.
Oft *Oleanders* in great *Vaſa's* live,
With *Myrtles* mix'd, and *Oranges*, and give
Some Graces to your *Garden*, which ariſe
From the Confuſion of their diff'rent Dies.
In watry Vales, where pleaſant Fountains flow,
Their fragrant *Berries*, lovely *Bay-trees* ſhow;
With Leaves for ever green, nor can we gueſs
By their Endowments, their Extraction leſs.
The charming Nymph liv'd by clear *Peneus* Side,
And might to *Jove* himſelf have been ally'd,
But that ſhe choſe in Virtues Paths to tread,
And thought a *God* unworthy of her Bed.
Phœbus, whoſe Darts of late ſucceſsful prov'd
In *Python*'s Death expected to be lov'd;
And had ſhe not withſtood blind *Cupid*'s Pow'r,
The fiery Steeds and Heav'n had been her Dow'r:
But ſhe by her Refuſal more obtain'd,
And loſing him, immortal Honour gain'd;

Cherish'd by thee, *Apollo*, Temples wear
The *Bays*, and ev'ry clam'rous *Theatre*.
The *Capitol* it self, and the Proud Gate
Of Great *Tarpean Jove* they celebrate.
Into the *Delphick* Rites, the Stars, they dive,
And all the hidden Laws of Fate perceive.
They in the Field (where Death and Danger's found,
Where clashing Arms, and louder Trumpets sound)
Incite true Courage: Hence the *Bays*, each *Muse*,
Th' Inspiring *God*, and all good Poets chuse.
Persian Liguſtrum grows among the rest,
Whose azure Flowers imitate the Crest
Of an *Exotick* Fowl; they first appear
When the warm Sun and kinder Spring draws near;
Then the green Leaves upon the Boughs depend,
And sweet Perfumes into the Air ascend.
Pomegranates next their Glory vindicate,
Their Boughs in *Gardens* pleasing Charms create:
Nothing their flaming Purple can exceed.
From the green Leaf the Golden Flow'rs proceed:
Whose Splendor, and the various Curls they yield,
Add more than usual Beauty to the Field.
As soon as e're the *Flowers* fade away,
Yet to preserve their lustre from decay,
To them the *Fruit* succeeds, which in a Round
Conforms it self, whose Top is ever crown'd:
In Seats apart, stain'd with the *Tyrian* Dye,
A thousand Seeds within in order lye.
Thus, when industrious Bees do undertake
To raise a Waxen Empire, first they make
Rooms for their Honey in divided Rows;
And last of all, on Twigs the Combs dispose.
So ev'ry Seed a Narrow Cell contains,
Made of hard Skin, which all the Frame sustains.
Neither too sharp or sweet the Seeds incline
Too much, but in one Mixture both conjoin.
From whence this Crown, this Tincture is deriv'd,
We now relate; the Nymph in *Africk* liv'd;
Descended from the old *Numidians* Race,
Beauty enough adorn'd her swarthy Face;
As much as that tann'd Nation can admit,
Too much, unless her Stars had equall'd it.
Mov'd by Ambition, she desir'd to know
Whate'er the *Priests* or *Oracles* could show
Of things to come. A Kingdom they dispense
In Words including an ambiguous Sense.
She thought a Crown no less had signify'd.
But in the *Priests* she did in vain confide.
When *Bacchus* th' Author of the fruitful Vine
From *India* came, her for his Concubine
He takes; and to repair her Honour lost,
Presents her with a Crown; by Fate thus croſt,
The too ambitious Virgin ceas'd to be;
Transmitting her own Beauty to this *Tree*.
Sharp *Paliurus*, *Ramnus*, (which by some
Is *White-thorn* term'd) your *Garden* will become.
There leavy *Capriſoil*, *Alcæa* too,
Th' *Idæan* Bush, and *Halimus* may grow.
Woody *Acanthus*, *Ruscus* there may spring,
With other Shrubs; these skilful *Gard'ners* bring
Into a thousand forms; but 'tis not fit
To tell their *Species*, almost infinite.
From brighter Woods the Prospect may descend
Into your *Garden*, there it self extend
In spacious Walks, divided equally,
Where the same Angles in all parts agree.
In oblique winding others plant their *Groves*,
For ev'ry Man a diff'rent Figure loves.
Thus the same Paths, respecting still their Bound,
In various Tracts diffuse themselves around.
Whether your Walks are straight or crooked made,
Let Gravel, or Green Turf be on them laid.
The Nymphs and Matrons then in Woods may meet,
There walk, and to refresh their wearied Feet,
Into their Charios mount, though to the young
Labour and Exercise does more belong.
If close-shorn *Phillyrea* you deduce
Into a Hedge, for Knots the *Carpine* use;
Or into *Arbors* with a Hollow *Bark*,
The pliant Twigs of soft *Acanthus* make.
With stronger wires the flowing Branches bind,
For if the Boughs by nothing are confin'd,
The *Tonsile Hedge* no longer will excell;
But uncontrol'd beyond its Limits swell.
And since the lawless Grass will oft invade
The neighb'ring Walks, repress th' aspiring Blade;
Suffer no Grass or rugged Dirt t' impair
Your smoother Paths. But to the *Gard'ner*'s care
These things we leave; they are his Business,
With setting *Flowers* and planting fruitful *Trees*:
And with the Master let the Servants join,
With him their willing Hearts and Hands combine:
Some should with Rowlers tame the yielding Ground,
Making it plain where ruder Clods abound.
Some may fit Moisture to your Meadows give,
And to the Plants and Gardens may derive
Refreshing Streams; let others sweep away
The fallen Leaves; mend Hedges that decay:
Cut off superfluous Boughs; or with a Spade
Find where the Moles their winding Nests have made;
Then close them up. Another Flowers may sow
In Beds prepar'd; on all all some Task bestow;
That if the Master happens to come down,
To fly the Smoak and Clamour of the Town;
He in his *Villa* none may idle find,
But secret Joys may please his wearied Mind.
And blest is he, who tir'd with his Affairs,
Far from all Noise, all vain Applause, prepares
To go, and underneath some silent Shade,
Which neither Cares nor anxious Thoughts invade,
Does for a while himself alone possess;
Changing the Town for Rural Happiness.
He, when the Sun's hot Steeds to th' Ocean haste,
E'er sable Night the World has over-cast,
May from the Hills the Fields below descry,
At once diverting both his Mind and Eye.
Or if he please, into the Woods may stray,
Listen to th' Birds, which sing at Break of Day;
Or, when the Cattle come from Pasture, hear
The bellowing Oxe the hollow Valleys tear
With his hoarse Voice: Sometimes his Flowers invite;
The Fountains too are worthy of his sight.
To ev'ry part he may his Care extend.
And these Delights all others so transcend,
That we the City now no more respect,
Or the vain Honours of the Court affect;
But to cool Streams, to aged Groves retire,
And th 'unmix'd Pleasures of the Fields desire;
Making our Beds upon the grassy Bank,
For which no Art, but Nature we must thank.
No Marble Pillars, no proud Pavements there,
No Galleries, or fretted Roofs appear;
The modest Rooms to *India* nothing owe;
Nor Gold, nor Ivory, nor Arras know:
Thus liv'd our Ancestors when *Saturn* reign'd,
While the first Oracles in *Oaks* remain'd:
A harmless Course of Life they did pursue;
And nought beyond their Hills their Rivers knew.
Rome had not yet the Universe ingross'd,
Her Seven Hills few Triumphs then could boast.
Small Herds then graz'd in the *Laurentine* Mead;
Nor many more th' *Arician* Valleys feed.
Of Rural Ornaments, of Woods much more
I could relate, than what I have before;
But what's unfinish'd, my next Care requires,
And my tir'd Bark the neighb'ring Port desires.

APPENDIX.

A TABLE, ſhewing the ſeveral Sorts of Soil, or Places that are proper, or at leaſt may ſerve, or that are unfit for certain Kinds of Trees.

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Jo. *Worlidge* of Husbandry. *fol.* 1675.
——His Vinetum. 8*vo.* 1691. And ſome other Books.

THESE Trees grow in almoſt *Any* Soil; *Limes*, Evelyn Silva 68. Cook 70. *Elm*, Farm 503. *Aſh*, idem 662. *Cheſnut*, id. 664. *Sallow*, Nourſe, c. 8. *Coppices*, Evelyn Silva 176. *Walnut*, Creſcentienſis 156. *Pear*, Evelyn Silva 17. Phil. Tranſact. n. 71. *Apple*, Farm 379. Worlidge Vinetum, c. 4. ſect. 1. *John-Apple*, ib. Sect. 2. *Fruit-Trees*, Beal 9. Meager, c. 2.

Arable Ground, and *Balks*: See *Plowed* Ground, and Open *Fields*, (ſome *Timber*-Trees, Evelyn Silva 7. 271.)

Almoſt *Barren* Ground ſerves for theſe; *Birch*, Evelyn Silva 78. *Hornbeam*, Evelyn Silva 48. *Firr*, Evelyn Silva 118. *Pine*, Evelyn Silva 118. Creſcentienſis 257. *Pitch*-tree, Evelyn Silva 4. *Box*,

Evelyn Silva 4. *Yew*, Evelyn Silva 4. 113. *Poplar*, Evelyn Silva 71. *Abele* Cook 78. *Beech*, Evelyn Silva 45. Nourſe c. 8. *Pear*, Langford 63, 97, 148. Beal 10. *Apples* in ſome Places, Beal 9. *Weſtbury*-Apple, Worlidge Vinet. c. 4. Sect. 2. But in moſt Places not well for *Apples*, Evelyn Terra 34. Evelyn Pomona 71. Langford 97. London's Gardiner p. 9. Auſten Obſerv. p. 5, 37. Creſcentienſis 147. Nor for *Oak*, Farm 666. Nor for *Nurſeries* of Fruit-Trees, Evelyn Terra 35. Cotton 111. Langford 7. Farm 656. See Courſe, Deep, Fat Gravel, Shallow.

Black Fat Ground; *Oak*, Evelyn Silva 24. Worlidge Husb. 75. *Cheſnut*, Gerard's Herb. *Apple*, Farm 379. *Fruit*-Trees, Meager c. 2. J. B. Husb. 303. Lawſon c. 2. *Moſt* Trees, Evelyn Terra 4. Lawſon ibid.

Boggy Ground drained ſerves for theſe; *Birch*, Evelyn Silva 78. *Poplar*, Evelyn Silva 71. Blith 132. *Alder*, ib. Nourſe 123. Worlidge Husb. 83. *Aſh*, Blith, 132. *Willow*, ib. and 124. *Cedar*, Evelyn Silva 135. *Wood*, Evelyn Silva 244. Not for *Fruit*-Trees, Lawſon c. 2. See Cold.

In *Bottoms*; moſt *Timber*-Trees, Evelyn Silva [276.] Evelyn Terra 6. See Vallies.

Brick-Earth. See Loam.

Inſtead of *Briars* and Weeds, *Fruit*-Trees, Evelyn Pomona. 51. or Foreſt-Trees, or both.

To ſhelter *Buildings*; *Walnut*, Langford 134. See Houſes.

In Places where *Cattle* come; not *Yew*, being eſteemed Noxious to them, Evelyn Silva 157.

Chalky Ground; *Beech*, Evelyn Silva 46. Worlidge Husb. 78. *Cherry*, Evelyn Terra 34. *Walnut*, Evelyn Silva 59. Worlidge Husb. 101. *Juniper*, Bacon Nat. Hiſt. Exp. 659. Moſt *Fruit*-Trees, ib. *Apple*, Evelyn Terra 34. Winter *Apple* and *Pear*, J. B. Husb. 303. *Elm*, *Aſh*, *Oak*, Creſcentienſis 257. Not *Poplar*, id. 176. Entire Chalky Ground, unmixed, is bad for moſt Trees, Smith 41.

Champion Grounds; See Open-*Fields*.

Clay; *Oak*, Evelyn Silva 244. The tougheſt *Oak*, Evelyn Silva 8. Farm 649. and moſt durable, ib. Other *Timber* ſlowly, Evelyn Silva 244. *Pears* 371. Worlidge Husbandry 100, and Vinet. c. 4. Sect. 2. Winter *Apples*, J. B. Husb. 302. Pears and Apples, Drope of Fruit-Trees c. 1. Not *Fruit-Trees*, Bacon Nat. Hiſt. Exp. 544. Auſten Obſerv. p. 37. Not *Abele*, Evelyn Silva 73. Hartlib Leg. 131. Some *Clay* is fit for *Timber*-Trees, Smith 41. See Stiff.

Moiſt *Clay*; *Oak*, Evelyn Silva 25. 198. *Aſh*, Farm 662. *Elm*, ib. 663. *Cheſnut*, Worlidge Husb. 80. It will ſerve for Red-*Willow*, White *Sallow*, and Male or Weich *Elm*.

Soft *Clay*; *Apple* better than *Pear*, Beal 11. Cotton 6.

Strong *Clay*; Firr, Evelyn Silva 120. Pine ib. It ſerves for ſome *Cider-fruit*, Evelyn Pomona 74, 77. *Pear* better than *Apple*, Evelyn Terra 34. Evelyn Pomona, 57, 77. Beal 10. Nourſe 158. Worlidge Husb. 100. Few Trees proſper in it, Evelyn Silva 8. 25. 244. Evelyn Terra 5. Cook 15. *French* Gardiner 2. Not *Oak*, Evelyn Silva 25. Not *Aſh*, Evelyn Silva 53. Not *Beech*, Farm 667. Cook 57. Not *Elm*, id. 51. Not *Cherry*, id. 67. Not *Walnut*, unleſs it be mixed with Stones or Chalk, id. 63. Not *Cheſnut*, Farm 391. Not *Cheſnut* in Stiff red Clay, Meager c. 19.

Clayiſh

Clayiſh, or mixt; *Walnut*, Hartlib Deſ. 22. Clay and Sand mixt s beſt for Fruit-trees, Taverner 35. See Loam.

In *Cloſes*. See Fields.

Cold Ground; *Aſh*, Evelyn Sylva [277.] *Birch*, Pliny, l. 16. c. 18. *Se vice*, ib. See Warm.

Cold and Moiſt Ground; Weſtbury-*Apple*, Worlidge Vinet. c. 4. Sect. 2. See Moiſt.

Cold and Spungy; *Alder*, Evelyn Silva 86. Not Female *Elm*, Evelyn Silva 42. See Boggy and Wet.

On *Commons*; *Foreſt*-trees, Evelyn Silva 96. Cook 88. *Fruit*-trees for the Poor at 100 Foot diſtance, Evelyn Pomona 51. at 30 Yards diſtance, Hartlib's Deſign 6. Fruit-trees and Foreſt-trees mixt.

In *Coppices*; Not Timber-trees, Nourſe c. 7.

In Ground fit for *Corn*; Moſt Timber-trees, Evelyn Silva 8. *Fruit*-trees, Evelyn Pomona 78. In Ground proper for Wheat, Barley, Rye, Beans or Peaſe, *Fruit*-trees, Compleat Planter, 258.

In every *Corner* of your Ground ſet Fruit-trees, Evelyn Silva 105. Gerard's Herb. of Apples.

Courſe Ground ſerves for moſt *Foreſt*-trees, Evelyn Silva 244. *Cheſnut*, Evelyn Silva 8. Evelyn Pomona 77. Farm 649. *Hornbeam*, ib. 666. *Beech*, ib. *Walnut*, Evelyn Silva 9. Evelyn Pomona 77. Langford 63. *Quince*, Evelyn Pomona 77. Pine, Firr, Aſh, Wild-Pear, Crab, Evelyn Silva 8. Readſtreak, Worlidge Vinet. c. 4. Sect. 2. For *Apples* and *Pears* Ordinary Soil ſerves, Auſten of Fruit-trees 64. Beal 9. and Poor Arable, Evelyn Pomona 68, 77. See Barren.

Where *Crab*-trees proſper ſet Apple-trees.

Craggy Ground; *Aſh*, Evelyn Silva [277.] Firr. See Rocky.

Crumbling Mold is good, Evelyn Terra 5.

Deep Soil; *Oak*, Evelyn Silva 26. *Elm*, Evelyn Silva 43. Garden-*Pears*, Henonville c. 4. *Fruit*-trees, Evelyn Pomona 68. Langford 81. Auſten Obſerv. p. 5. Beal 31. Soil one Foot deep, id. 43. For Garden Fruit-trees, Soil 2 Foot and a half deep, Quintinye p. 60. London 1. c. 3. For moſt Trees Soil 2 Spade deep, or one and a half, Blith 124. See Shallow.

On *Ditch*-Banks; Female *Elm*, Evelyn Silva 41. *Aſh*, Farm 662.

Dry Ground; *Holly*, Cook 96. *Walnut*, Meager c. 18. *Maple*, Evelyn Silva 65. Cook 72. It ſerves for *Abele*, Cook 78. *Poplar*, Evelyn Silva 72. Black-*Alder*, Evelyn Silva 86. *Sallow*, not *Quince*, Quintinye 60. Not *Willow*, Farm l. 7. c. 15. Not *Aquaticks*, ib.

Dry hot Ground, *Cheſnut*, Langford 136. See Cold, Moiſt and Wet.

Dry rich Ground; *Walnut*, Evelyn Silva 59. Gerard Herb. Langford 135. Cook 63. Worlidge Husb. 101. *Cheſnut*, Cook 64. *Oak*, Farm 666. *Beach*, ib. *Hornbeam*, ib.

Dry, ſandy, hot Ground ſerves for *Cherry*, Evelyn Silva 63. Cotton 6. *Pear*, Evelyn Terra 34. *Birch*, Evelyn Silva 78. *Apples* in ſome Places, Beal 9. Not *Elm*, Evelyn Silva 39. Not *Limes*, Worlidge Husb. 84. See Rye-Land, and Sandy.

Very *Dry* Ground; Not *Fruit*-trees, Evelyn Pomona 68. London 1. c. 3. Compleat Planter 258. Lawſon c. 2.

Ground leaning to the *Eaſt*; *Foreſt*-trees, Nourſe c. 7. *Fruit*-trees, d. p. 132.

Ground *Eaſy* to till; *Fruit*-trees, London 1. c. 3.

Fat Soil; *Lime*, Evelyn Silva 70. Cook 70. *Sycomore*, Blith 135. *Withy*, Nourſe c. 8. *Elm*, Farm 503. *Maple*, id. 663. *Lotus*, id. 306. *Quince*, Langford 134. *Pear*, Meager c. 11. Creſcentienſis 256. French *Cornel*, Phil. Tranſ. n. 71. *Apple*, Evelyn Terra 34. Evelyn Pomona 70. Langford 81. Auſten Obſ. p. 5. Creſcentienſis 147, 256. But yet for *Apples* not very fat, Evelyn Pomona 55, 77. Taverner 34.

Soil made *Fat* with much Dung, Not *Holly*, Evelyn Silva 160. Not *Cherry*, Farm 374. Not *Foreſt*-trees, Cook c. 8. Not fit for a *Nurſery*, Langford 7, 26. Auſten of Fruit-trees 63. Taverner 31.

Feeding Ground; *Limes*, Evelyn Silva 69. Cook 70. *Plane*-tree, Evelyn Silva 120. See Loam.

In *Fields*; Trees ſet in Rows, Evelyn Silva 24. Houghton's Letters of Husb. Vol. II. p. 63. *Fruit*-trees, Evelyn Pomona 50. Langford 95. Nourſe 129, 145. Auſten of Fruit-trees, Epiſt. Ded. and p. 1, and 2. Plot's Nat. Hiſt. of Staff. 226. At the Diſtance of 45 Foot, Farm 398. In Fat Ground allow the greater diſtance, ib. And in Windy Places the leſs, Meager c. 6. Pliny l. 17. c. 11. *Fruit*-trees and *Foreſt*-trees mixt. See Paſtures, Plowed Ground, and Meadows.

In Open *Fields*; *Foreſt*-trees, Cook 85. *Pears*, Evelyn Pomona 80. *Bare-land Pear*, Phil. Tranſ. n. 71. *Fruit*-trees, Evelyn Pomona 51, 77, 78. Hartlib's Deſign 14. Taverner 30. Nourſe 129, 130, 132, 152.

Flinty Ground; *Oak*, *Aſh*, *Elm*, *Beech*, Evelyn Silva [279.] Farm 667.

Very near *Fruit*-trees; Not *Aſh*, Cook 55. Not *Aſpen*, nor any *Big* Trees, but ſuch as have their greateſt Branches often pared away. *No* Trees, Lawſon c. 13.

Near fine *Gardens*: Not *Aſh*, Evelyn Silva 54. Cook 55.

Gorſty Ground; Gennet-Moyle, Phil. Tranſ. n. 71. See *Signs* of bad Ground.

Gravel; *Beech*, Evelyn Silva 45. Cook 15, 57, 96. Worlidge Husb. 78. *Oak*, Evelyn Silva 25. *Aſh*, Cook 15. *Cherry*, ib. *Holly*, Evelyn Silva 160, 342. Cook 87, 89. *Walnut*, Langford 136. *Pear*, Evelyn Terra 34. Evelyn Pomona 77. Ray's Hiſt. Plant. Worligde Husb. 100. *Elm*, Nourſe 130. Not *Fruit*-trees, ib. unleſs well digged and dunged, J. B. Husb. 303. On gravelly and thorny Hills, *Oak* better than *Cheſnut*, Columella l. 4. c. 33.

Hungry *Gravel* ſerves for *Pears*, Evelyn Pomona 57. *Few* Trees, Auſten Obſerv. p. 37. Not *Apples*, Evelyn Pomona 77. Not *Oak*, Evelyn Silva 25, 28. Cook 37. Not *Aſh*, Farm 662. Not *Elm*, Evelyn Silva 28. Not *Walnut* on ſharp Gravel, Cook 63.

Gravel mixt with *Loam*; Engliſh, French and Dutch *Elms*, Evelyn Silva 198, 199. *Oak*, *Aſh* and *Elm*, Evelyn Silva 242. *Walnut*, Evelyn Silva 58. *Cherry*, Evelyn Silva 63. Cook 66. Any Trees, Cook 15, 89. Blith 124.

Moiſt *Gravel*; *Cheſnut*, Evelyn Silva 55. Meager c. 19. *Elm* and *Oak*, Evelyn Silva 198, 199. *Firr* and *Pine*, Evelyn Silva 124. Green *Willow*. Engliſh, French and Dutch Elms.

On *Hades*; Foreſt-trees, or Fruit-trees, or both.

Hard Footing with reaſonable Depth of Earth, ſerves for Fruit-trees, Evelyn Terra 35. and for ſome Timber-trees, ibid.

Very *Hard* Ground is not fit for Fruit-trees, London 1. c. 3.

On *Head*-Lands; Fruit-trees, Evelyn Pomona 51, 67.

Heathy Ground ſerves for Wood in ſome Places, Evelyn Silva 7, 244. See *Signs* of bad Ground.

In

In *Hedges*; *Elm*, Evelyn Silva 42, [279.] Cook 102. *Oak*, *Beech*, Evelyn Silva 101, 103. *Aſh*, 105. Farm 662. *Oak* not headed, Cook 103. *Cheſnut*, Evelyn Silva 56. *Plums*, Hartlib's Leg. 21. *Fruit*-trees and *Foreſt*-trees mixt, Evelyn Silva [277,] [278.] Blith 144. *Timber*-trees, Evelyn Silva 12. Houghton's Letters, Vol. II. p. 73. *Fruit*-trees, Evelyn Silva 111. Evelyn Pomona 51, 67. Houghton ib. Worlidge Husb. 100. Auſten of Fruit-trees, Epiſt. Ded. and p. 1. and 2. Beal 3. Lawſon c. 4. Taverner 29. Hartlib's Def. 13. Plot's Nat. Hiſt. of Staff. 226, 384. Nourſe 141, 152. But not where Water ſtands long in the Ditches, id. 141. Not high *Maples*, Cook 72. Not *Walnut*, Worlidge Husb. 102. Not *Timber*-trees, Nourſe c. 4. Not too many high Standard Trees or Pollards, Cook 102.

Diſtance of Fruit-trees in or near *Hedges*; *four* or *five* Yards, Langford p. 22. *Twenty Foot*, Evelyn Silva 100. Evelyn Pomona 70. Cook 97, 101. Or *ten* or *twelve Foot*, ib. *Eight Yards*, or nearer, Langford 105. *Twenty Foot* for leſſer Trees, and 35 *Foot* for bigger, Farm 398. *Twenty Yards*, Blith 158.

Diſtance of *Timber*-trees in or near *Hedges*; 20 or 30 *Foot*, Evelyn Silva 103. 4 *Yards*, Evelyn Silva [278.] *One Perch*, Blith 144.

Near *Hedges*, not in them, ſet *Timber*-trees and *Fruit*-trees, Evelyn Silva 106. Langford 103. Worlidge Husb. 100. *Walnut*, Evelyn Silva 60.

High Ground; *Beech*, Evelyn Silva 45. *Cheſnut*, Evelyn Silva 55. *Hornbeam*, Evelyn Silva 48. *Oak*, Beal 36. Not *Elm*, Worlidge Husb. 76.

Near *Highways*; *Elm*, Beal 36. *Walnut*, Evelyn Silva 59. Beal 33. *Cheſnut*, Evelyn Silva 55. *Fruit*-trees, Beal 7. Big *Fruit*-trees 35 *Foot* aſunder, Farm 398. *Aſh*.

Hills; *Cheſnut*, Evelyn Silva 55. *Maple*, Evelyn Silva 65. *Lime*, Farm 667. *Oak*, *Aſh*, &c. Beal 49. *Beech*, Evelyn Silva 45. Nourſe c. 8. *Apple*, Farm 379. *Cedar*, Evelyn Silva 135. *Cherry*, Palladius Oct. ti. 12. *Larch*, *Elm*, Pliny l. 16. c. 18. *Service*, ib. Farm 395. *Pear*, *Poplar*, Pliny, ib. Not *Poplar*, Creſcentienſis 176. *Walnut*, Evelyn Silva 59. Meager c. 5. Not *Walnut*, Pliny ib. See Mountains.

Hills and Vallies; *Firr*, *Lime*, Pliny, ib. *Oak* and *Cheſnut*, ib. Creſcentienſis 256. *Fruit*-trees, Nourſe 131.

Near the Foot of a *Hill*; *Fruit*-trees, Beal 31.

In *Holes* where great Trees have grown before, ſet no Trees; Sil. Taylor of Incloſure 44. Quære. See Evelyn Silva 8. and 180.

Near *Houſes*; *Pears*, Evelyn Pomona 79. *Fruit*-trees, Beal 79. *Elm*, ib. Farm 650. Not *Mulberry*, ib. 383. Not *Sycomore*, Cook 73.

Land-Diviſions. See Plowed Ground, and Open Fields.

Level Ground unſhelter'd or wet; Not *Fruit*-trees, Nourſe 131.

Light Ground; Trees whoſe Roots run ſhallow, Cook 15. Moſt Trees, id. 16. Blith 124. *Beech*, Cook 15. *Sycomore*, id. 73. *Cheſnut*, Evelyn Silva 55. Farm 391. Female-*Elm*, Worlidge Husb. 76. *Stone*-Fruit, Evelyn Terra 38. *Cherry*, Evelyn Silva 73. Evelyn Terra 34. Cook 15. Quintinye 60. *Pear*, Hartlib Def. 22. Langford 63. *Walnut*, ib. Some *Cider*-Apples. Evelyn Pomona 57, 58. Worlidge Vinet. c. 4. Sect. 1. *Summer*-Apples, ib. Not *Pippins* in Light Rich Ground, ib. See Ryland.

Light

Light Sandy Ground; *Stone*-Fruit, Cotton 6. It ſerves for *Apples* in ſome Places, Beal 9. Not *Firr*, nor *Pine*, Evelyn Silva 123, 126. Not *Oak*, Evelyn Silva 24. Creſcentienſis 170. See Sand.

Very *Light* Ground; Not *Fruit*-trees, London 1. c. 3.

Limed Ground; Not *Fruit*-trees, Nourſe 140.

Loam, or light feeding Ground, or light Brick-Earth; *Elm*, Cook 51. *Oak* and *Pear*, id. 15. Engliſh, French and Dutch *Elms*.

Horſe-Cheſnut, Worlidge Husb. 85. Moſt *Fruit*-trees, Evelyn Terra 5. Any Trees, Evelyn Silva 242. See Gravel.

Looſe Ground; *Walnut*, Langford 136. Creſcentienſis 156. *Cheſnut*, id. 256. *Alder* and *Willow*, id. 257. *Poplar*, ib. *Aſh*, Cook 55. Farm 662. *Hornbeam*, id. 666. *Beech*, id. 667. Not *Oak*, Evelyn Silva 28. Creſcentienſis 170. See Stiff.

Low Ground; French *Elm*, Evelyn Silva 39. Dutch *Elm*, *Willow*, Creſcentienſis 257. *Poplar*, ib. and 176. *Timber*-trees, Smith 41. *Fruit*-trees, Lawſon c. 2. See *High*, and *Hills*.

Marl; *Walnut*, Evelyn Silva 58. Worlidge Husb. 101. *Oak*.

Soil falſely called *Marl*, in Hereford ſhire; *Pear*, Beal 10.

Marſhy Ground; *Alder*, Nourſe 123. Farm 660. Creſcentienſis 173. See Wet.

Near *Marſhes*; Not *Fruit*-trees, Meager c. 1.

Meadows; *Alder*, Farm 504, 660. *Apples*, Palladius Feb. ti. 25. *Aquaticks*; Any Trees, Cook 88. *Fruit*-trees and Foreſt-trees mixt. See Mowing Ground, and Rivers.

Upland *Meadow*; *Timber*-trees, London 1. c. 3. Meager, c. 2.

Moiſt Ground; *Aquaticks*, *Soft* Wood, Evelyn Silva 242. *Poplar*, Evelyn Silva 72, 241. Creſcentienſis 257. *Plane*-tree, Evelyn Silva 116. Farm 306. *Service*, id. 595. *Elm*, Evelyn Silva 39. Worlidge Husb. 76. Farm 503, 563. Engliſh, French and Dutch *Elms*. *Quince*, Langford 134. Meager c. 12. Farm 375. *Lime*, id. 667. *Hornbeam*, id. 666. *Cheſnut*, id. 391. *Maple*, id. 663. Pliny l. 16. c. 18. *Oak*, Smith 55. *Aſh*, Creſcentienſis 176. Farm 662. *Sycomore*, Evelyn Silva 68, 82. *Cherry*, Farm 374. *Black*-Cherry, Evelyn Silva 82. *Cedar*, Evelyn Silva 135. It will ſerve for *Apples*, Farm 379. Palladius Feb. ti. 25. *Weſtbury*-Apple, Worlidge Vinet. c. 4. Sect. 2. *Pears*, Meager c. 11. *Pears* better than *Apples*, Nourſe 158. Taverner 36. See Dry.

Mooriſh Ground ſerves for *Wood*, Evelyn Silva 242. *Alder*, Cook 81. *Sallow*, Evelyn Silva 166. Cook 83. *Poplar*, id. 79. *Few* Trees, Smith 41.

Near *Mooriſh* Ground; Not *Fruit*-trees, Meager c. 1.

Mounds. See Hedges.

Mountains; *Firr*, Bacon's Nat. Hiſt. Exp. 659. *Pine*, ib. Farm 292. See Hills.

High *Mountains*; Unfit for *Fruit*-trees, Cotton 7. And for the planting of moſt Trees, Smith 40.

Wet *Mountains*; *Maple*, *Aſh*, *Service*, *Lime*, *Cherry*, Pliny l. 16. c. 18. *Cedar*, Farm 285.

Mowing Ground; *Oak*, Smith 102. *Fruit*-trees, Taverner 36. Auſten of *Fruit*-trees p. 2. *Fruit*-trees and *Foreſt*-trees mixt. See Meadows.

Near together; *Elm*, *Aſh*, *Lime*, *Sycomore*, *Firr*, *Pine*, Evelyn Silva 17. Not *Oak*, *Beech*, or *Walnut*, Evelyn Silva 17. Not *Gennet-Moyle*, Worlidge Vinet. c. 4. Sect. 2.

On the *North* ſides of Hills; *Cheſnut*, Evelyn Silva 55. Farm 391, 664.

In *Orchards*; Not *Aſh*, Cook 55. Not *Walnut*, Meager c. 18. Lawſon c. 13. No Trees, but for Fruit and Flowers, ib. Some *Ungrafted* Fruit-trees, id. c. 7. Nourſe 142, 151. *Fruit*-trees of all ſorts id. 152. Plant the *higheſt* Trees, as *Pears*, &c. on the *North* ſide, Langford 94. Lawſon c. 9. Meager c. 5. Sharrock 206.

The Diſtance of Trees in *Orchards*; 50 Foot, Lawrence of Nurſeries p. 15. 40 Foot, Tuſſer, Decem. 15. Betwixt 8 and 14 Yards, Langford 85. 10 or 12 Yards, Auſten of Fruit-trees 94. 30 Foot, Evelyn Pomona 78. Beal 43. Nourſe 140. *Pears* 30 Foot, *Apples* more, Meager c. 11. *Apples* 30 Foot, *Pears* 24 Foot, French Gardiner 40. Some 20 Foot, others 40 Foot, Worlidge Vinet. c. 4. Sect. 4. Betwixt 20 and 30 Foot, Farm 399. 20 or 30 Foot, Hartlib's Leg. 21. Creſcentienſis 257. 30 or 40 Foot betwixt the Rows, Columella l. 5. c. 9. and l. 13. c. 19. 30 Foot betwixt the Rows, Pallad. Feb. ti. 19. 20 Foot one Way, and 30 Foot another, Taverner 35. 30 Foot one Way, and 15 Foot another, Cook 111. See Plowed Ground.

On the *Outſides* of Orchards; *Elm*, Evelyn Silva 258. *Cheſnut*, Evelyn Silva 57. *Walnut* next the Hedges, and *Oak*, *Elm*, or *Aſh* outmoſt, Lawſon c. 13. And other Trees for Bees, ib. *Walnut*, *Aſh*, *Poplar*, &c. Worlidge Vinet. c. 4. ſect. 1. *Walnut*, Meager c. 18. Wild Trees round about, eſpecially on the Weſt ſide, id. c. 1. On the North ſide *Walnut*, *Cheſnut*, &c. Langford 81, 94, 134, 136. On the North, and North-Eaſt, *Elms*, Beal 47. Secure *Fruit*-trees from the South-weſt Winds, Cotton 8.

In *Parks*; *Hornbeam*, Evelyn Silva 49. *Fruit*-trees and *Foreſt*-trees mixt.

In *Paſtures*; *Oak*, Evelyn Silva 8, 25. Engliſh, French and Dutch *Elm*, Evelyn Silva 43, 44. *Foreſt*-trees, Evelyn Silva 8, [275.] Cook 88. Worlidge Husb. 93. At the Diſtance of 40 Foot, Evelyn Silva 30. Of 3 or 4 *Rod*, Cook 85. Of 36 Foot or nearer, Smith 102. Of 11 Yards, Evelyn Silva [277.] *Fruit*-trees in Paſtures, Evelyn Silva 109. Sharrock c. 8. n. 5. Beal 22. Cook 85. Langford 95. Auſten of Fruit-trees p. 2. Hartlib's Legacy 21. Taverner 36. At the Diſtance of 4 or 5 Fathom, Henonville c. 7. *Fruit*-trees and *Foreſt*-trees mixt. Evelyn Silva 24.

Cow-*Paſture*; Is beſt for *Foreſt*-trees, Evelyn Silva 7, [276] Cook 88.

In Dry *Pits*; *Walnut*, Evelyn Silva 59.

In *Plains*; *Oak*, *Maple*, *Aſh*, *Beech*, Pliny l. 16. c. 18. *Fruit*-trees, Meager c. 1. But not in naked Plains, Cotton 7. See Level Ground.

Plowed Ground; *Foreſt*-trees, Evelyn Silva 257. 36 Foot aſunder, Smith 102. *Oak*, Evelyn Silva 258. *Elm*, Evelyn Silva 42. Farm 663. *Maple*, ib. *Cheſnut*, 40 Foot aſunder, Creſcentienſis 139. *Walnuts* at 60 and 100 Foot diſtance, Evelyn Silva 58. 256. Worlidge Husb. 101. *Abele* well pruned, Hartlib's Leg. 131. Not *White-Poplar*, Creſcentienſis 177. Not *Aſh*, Evelyn Silva 51. Cook 55. Worlidge Husb. 79. Farm 664. Not *Willow*, id. 502. Not *Quince*, *Fruit*-trees, Evelyn Pomona 67, 77. Worlidge Vinet. c. 4. Sect. 1. Meager c. 5. Cook 111. Langford 63. Hartlib's Leg. 21. Taverner

36. Auſten of Fruit-trees, Epiſt. Ded. and p. 1, and 2. Phil. Tranſ. n. 71. Trees bearing harſh *Fruit*, and *Foreſt*-trees mixt, the Foreſt-trees having the biggeſt ſide Branches often cut off.

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T E R R A.

A

Philoſophical Diſcourſe

OF

E A R T H,

Relating to the

Culture and *Improvement* of it for *Vegetation*, and the *Propagation* of *Plants*, &c. as it was preſented to the ROYAL SOCIETY, *April* 29. 1675.

By J. EVELYN, Eſq; Fellow of the ſaid SOCIETY.

Πολλάκι τοι κηπωρὸς ἀνὴρ καταχαίριον εἶπε.

FOR

JOHN EVELYN, *Esq*; &c.

SIR,

THE Council *of the* ROYAL SOCIETY, *considering with themselves the great Importance of having the Publick Meeting of the said* Society *constantly provided with Entertainments suitable to the Design of their Institution, have thought fit to undertake to contribute each of them* One; *not doubting but that many of the* Fellows *of the* Society *will join with them in carrying on such an Undertaking: And being well perswaded of your Approbation of this their Purpose, (so much tending to the Reputation, and Support of the* Society,) *they desire that you would be pleas'd to undertake for* One; *and to name any* Thursday *after the fourteenth of* January *next, such as shall be most convenient for you; when you will present the* Society *at one of their Publick Meetings, by your self (or some other of the* Fellows *for you) with such a* Discourse (*grounded upon, or leading to* Philosophical Experiments) *on a Subject of your own Choice: In doing of which, you will* benefit *the* Society, *and oblige,*

SIR,

Lond. Dec. 28. 1674.

Your humble Servant,

Brouncker, P. R. S.

To the Right Honourable

My Lord Viſcount *BROUNCKER*, &c.

Preſident of the ROYAL SOCIETY, *&c.*

MY LORD,

I *Have in Obedience to your* Lordſhip, *and the irreſiſtible* Suffrages *of that* SOCIETY *over which you* preſide, *reſign'd theſe* Papers *to be diſpos'd of, as you think fit: I hear your* Lordſhip's *Sentence is, they ſhould be made* Publick. *Why ſhould not a thouſand Things of infinitely more Value, daily enriching their* Collection (*and which would better juſtify the laudable Progreſs of that* Aſſembly) *be oftner produc'd, as ſome of late have been?* This, *my* Lord, *would obviate all unkind* Objections, *and cover the Infirmities of the preſent* Diſcourſe, *with things indeed worthy our* Inſtitution. *But, as I am to obey your* Lordſhip's *Commands, ſo both your* Lordſhip *and the* Society *are accountable for publiſhing the* Imperfections *of,*

My LORD,

Your Lordſhip's, *and* Their

moſt obedient Servant,

J. EVELYN.

TERRA.

A
Philoſophical Diſcourſe
OF
EARTH.

I A M call'd upon, by Command from your *Lordſhip*, and the Council, who direct the Progreſs of the *Royal Society*, (and as in courſe it falls) to entertain this *Illuſtrious Aſſembly* with ſomething, which being either deduced from, or leading to *Philoſophical Experiment*, may be of real uſe, and ſuitable to the deſign of its Inſtitution.

I am highly ſenſible, as of the Honour which is done me; ſo of the great Diſadvantages I lie under, for want of Abilities to carry me through an Undertaking of this Importance, and before ſuch acute and learned Judges; but I hope, my Obedience to your Commands, and, at leaſt, Endeavours, will cover thoſe defects for which I can make no other Apology.

There are few here, I preſume, who know not upon how innocent and humble a Subject I have long ſince diverted my thoughts; and therefore I hope, they will not be diſpleaſed, or think it unworthy of their patience, if from their more ſublime and noble Speculations (and which do often carry them to converſe among the brighter Orbs, and Heavenly Bodies) they deſcend a while, and fix their eyes upon the *Earth*, which I make the preſent Argument of my Diſcourſe. I had once indeed pitch'd upon a Subject of ſomewhat a more brisk and lively nature; for what is there in Nature, ſo ſluggiſh and dull as Earth? What more ſpiritual and active than *Vegetation*, and what the Earth produces? But *this*, as a Province becoming a more ſteady Hand, and penetrating Wit, than mine to cultivate, (unleſs where it tranſitorily comes in my way to ſpeak of *Salts* and *Ferments*) I leave to thoſe of this learned *Society*, who have already given ſuch admirable Eſſays of what they will be more able to accompliſh upon that uſeful and curious Theme; and therefore I beg leave, that I may confine my ſelf to my more proper *Element* the Earth, which though the loweſt, and moſt inferior of them all, is yet ſo ſubſervient, and neceſſary to *Vegetation*, as without it there could hardly be any ſuch thing in Nature.

To begin, I ſhall in the firſt Place then deſcribe, what I mean by *Earth*; then I ſhall endeavour to ſhew you the *ſeveral ſorts* and kinds

of Earth; and laſtly, how we may beſt *improve* it to the Uſes of the *Husbandman*, the *Foreſter*, and the *Gardiner*; which is indeed of large and profitable Extent, though it be but poor and mean in ſound, compar'd to Mines of Gold and Silver, and other rich *Ores*, which likewiſe are the Treaſures of the Earth, but leſs innocent and uſeful.

I intend not here to amuſe this noble Audience, or my ſelf, with thoſe nice Enquiries, concerning what the real *Form* of that Body or Subſtance is, which we call *Earth*, denudated and ſtripp'd of all *Heterogenity*, and reduc'd to its Principles: As whether it be compoſed of *ſandy*, *central*, *nitrous*, or other *Salts*, Atoms, and Particles? Whether void of all Qualities but Dryneſs, and the like, (as they commonly enter into the ſeveral Definitions of *Philoſophers*,) nor of what Figure and Contexture it conſiſts, which cauſes it to adhere and combine together, ſo as to affirm any thing dogmatically thereupon; much leſs ſhall I contend, whether it be a *Planet* moving about the *Sun*, or be fix'd in the *Centre* of the Univerſe; all which have been the curious reſearches and velitations of our later *Theoriſts*: but content my ſelf with that Body or Maſs of *Glebe*, which we both dwell on, and every day cultivate for our neceſſary ſubſiſtance, as it affords us *Corn*, *Trees*, *Plants*, and other *Vegetables* of all ſorts, uſeful for human life, or the innocent refreſhments of it.

Kircher in mund. ſubter.

Thoſe who have written *de Arte Combinatoria*, reckon up no fewer than *One hundred ſeventy nine millions one thouſand and ſixty different ſorts of Earths*; but of all this enormous number, as of all other good things, it ſeems they do not acquaint us with above eight or nine eminently uſeful to our purpoſe; and truly I can hardly yet arrive at ſo many. Such as I find naturally and uſually to riſe from the Pit, I ſhall here ſpread before you in their order.

The moſt beneficial ſort of *Mould* or *Earth*, appearing on the ſurface (for we ſhall not at preſent penetrate lower than is neceſſary for the planting and propagation of Vegetables) as it conſiſts of a mixt body, is the *natural* (as I beg leave to call it) *underturf-Earth*, and the reſt which commonly ſucceeds it, in *ſtrata*, or layers, 'till we arrive to the barren and impenetrable Rock, be it fat or lean, *Loam*, *Clay*, *Plaſtic*, *Figuline*, or *Smectic*; as *Chalk*, *Marle*, *Fullers-Earth*, *Sandy*, *Gravelly*, *Stony*, *Rock*, *Shelly*, *Coal*, or *Mineral*; ſuch as with the Antients were the *Creta*, *Argilla*, *Smectica*, *Tophacea*, *Pulla*, *Alba*, *Rufa*, *Columbina*, *Macra*, *Carioſa*, *Rubrica*, (I name them promiſcuouſly) to be found in the old *Geoponic* Authors, to whom I refer the Critical.

Moſt, or all, of theſe lying (as I affirm'd) in Beds, one upon another, from ſofter to harder, better to worſe, uſually determine in *Sand*, *Gravel*, *Stone*, *Rock*, or *Shell*, which *laſt* we frequently meet with in Marſh, and Fenny Delves, and ſometimes even at the foot of high *Mountains*, and ſometimes on the very Tops, after divers ſucceſſions of different Moulds, and at the bottom of the profoundeſt Pits, as in that deep *Perforation* made at *Amſterdam*, in order to the building of the *Stadt-Houſe*. All which, and of the Cauſe of the Succeſſions of the ſeveral *Strata* of *Foſſils*, &c. ſo bedded, thro' the whole Terreſtrial Globe, (after all Conjectures hitherto) the Ingenious Dr. *Woodward* attributes to a total diſſolution of the Materials which conſtituted the Original Fabrick of the *Antediluvian World*; when the commotion of the Waters beginning to calm and relax, the diſunited floating Particles

ticles promiſcuouſly blended, ſunk down, and ſubſiding according to their ſpecifick Gravity, ſettled in the Beds and *Strata* we now every where find them. But of this, and other Effects of the Deluge, ſee the learned *Doctor*'s *Eſſay*.

I begin with what commonly firſt preſents it ſelf under the removed Turf, and which, for having never been violated by the Spade, or received any foreign mixture, we will call the *Virgin-Earth*; not that of the *Chymiſts*, and the Searchers after the *Philoſophers Stone*; but as we find it lying about a foot deep, more or leſs, in our Fields, before you come to any manifeſt alteration of Colour or Perfection. This Surface-mould is the beſt, and ſweeteſt, being enriched with all that the Air, Dews, Showers, and Celeſtial Influences can contribute to it: For 'tis with good *Earth*, as with excellent *Water*, that's the beſt, which with leaſt difficulty receives all external qualities; for the Fatneſs of this *Under-turf* Mould, being drawn up by the kindly warmth of the Sun to the Superficies, ſpends but little of its Vigor in the Graſs and tender Verdure which it produces, and eaſily nouriſhes without diſſipating its Virtue, provided no rank Weeds, or predatitious Plants (conſummating their Seeds) be ſuffered to grow and exhauſt it; but maintains its natural force, and is therefore of all other uncultivated Moulds the moſt grateful to the Husbandman.

Now as the reſt of incumbent and ſubjacent *Earths* approach this in vertue, ſo are they to be valued; and of theſe there are ſeveral kinds, diſtinguiſhable by their ſeveral Conſtitutions: The beſt of which is *black*, *fat*, yet porous, light, and ſufficiently tenacious, without any mixture of *Sand* or *Gravel*, riſing in pretty groſs Clods at the firſt breaking up of the Plough; but with little labour and expoſure falling to pieces, but not crumbling altogether into Duſt, which is the defect of a more vicious ſort. Of this excellent *black* Mould (fit almoſt for any thing without much manure) there are three kinds, which differ in Hue and Goodneſs.

The next layer in *ſeries* to this, is uſually mixt with a ſprinkling of Stones, ſomewhat hard, yet friable, and when well aired and ſtirred, is not to be rejected; the looſeneſs of it, admitting the refreſhment of Showers, renders it not improper for Trees and Plants, which require more than ordinary Moiſture. Declining from this in perfection, is the *darkiſh gray* or *tawny*, which the deeper you mine, riſes vein'd with yellow, and ſometimes reddiſh, till it end in pale; and if you penetrate yet farther, commonly in Sand, and a gritty Stone.

Of a ſecond *Claſs*, is Mould of an obſcure Colour alſo, more delicate Grain, tender, cheſſum and mellow; clear of Stones and Grittineſs, with an eye of *Loam* and *Sand*, which renders it light enough, yet moiſt; of all other the moſt deſirable for *Flowers*, and the *Coronary Garden*.

To this we add a yet more obſcure and ſandy Mould, accompanied with a natural Fattineſs; and *this*, though rarer, is incomparable for almoſt any ſort of *Fruit-Trees*.

A *third* participates of both the former, fattiſh, yet interſperſed with ſmall Flints and Pebbles, not to be altogether neglected.

A *fourth* is totally *ſandy*, and that of divers colours, with ſometimes a bottom of *Gravel*, now and then *Rock*, and not ſeldom *Clay*; and, as the Foundations are, ſo is it more or leſs retentive of Moiſture, and tolerable for Culture: But all *Sand* does eaſily admit of Heat and Moiſture,

and

and yet for that not much the better; for either it diſmiſſes, and lets them paſs too ſoon, and ſo contracts no ligature, or retains it too long, eſpecially where the bottom is of Clay; by which it parches, or chills, producing nothing but Moſs, and diſpoſes to *Cancerous* Infirmities: But if, as ſometimes it fortunes, that the Sand have a Surface of more genial Mould, and a *fund* of Gravel or looſe Stone; though it do not long maintain the virtue it receives from Heaven, yet it produces as forward ſpringing, and is Parent of ſweet Graſs, which, though ſoon burnt up in dry Weather, does as ſoon recover with the firſt Rain that falls.

Of pure and *ſheere-Sand*, there's white, black, bluiſh, red, yellow harſher and milder, and ſome meer Duſt in appearance, none of them to be deſired alone; but the grey-black, and aſh-colour'd, and that which frequently is found in heathy Commons, or of the travelling kind, volatile, and exceeding light, is the moſt inſipid, aud worſt of all. I do not here ſpeak of the Drift and Sea Sands, which is of admirable virtue and uſe in mixtures, and to be ſpread on ſome Lands; becauſe it has been deſcrib'd ſo accurately already in a juſt Diſcourſe upon another occaſion, by an experienc'd *Gentleman*, dwelling in the Weſtern Parts, where this Manure is perfectly underſtood, and recommended to more general uſe.

As of *Sands*, ſo are there as different ſorts of *Clays*, and of as different Colours, whereof there is a kind ſo obſtinate and ill-natured, as almoſt nothing will ſubdue it, and another ſo voracious and greedy, as nothing will ſatiate, without exceeding Induſtry, becauſe it ungratefully devours all that is applied to it, turning it into as arrant *Clay* as it ſelf: Some *Clays* are more pinguid than other; ſome more ſlippery; all of them tenacious of Water on the Surface, where it ſtagnates and chills the Plant, without penetrating; and in dry Seaſons coſtive, and hardning with the Sun and Wind; moſt of them pernicious, and untractable.

The unctuous and fatter *Clay*, frequently lies upon the other, having oftentimes a baſis of *Chalk* beneath it; but neither is this worth any thing, 'till it be looſened, and rendred more kind, ſo as to admit of the Air and Heavenly Influences; in a word, the *blue*, *white*, and *red Clay*, (if ſtrong) are all unkind; the ſtony, and looſer ſort is yet ſometimes tolerable; but the light *Brick-Earth* does very well with moſt *Fruit-trees*.

I had almoſt forgotten *Marſh-Earth*, which though of all other, ſeemingly, the moſt churliſh, a little after 'tis firſt dug, and dryed, (when it ſoon grows hard, and chaps,) may with labour, and convenient expoſure, be brought to an excellent Temper; for being the Product of rich Slime, and the Sediment of Land-Waters, and Inundations, which are uſually fat, as alſo the rotting of Sedge, yea, and frequently of proſtrated Trees, formerly growing in or near them, and in proceſs of time rotted (at leaſt the ſpray of them) and now converted into Mould, becomes a very profitable Land: But whether I may reckon this among the natural *Earths*, I do not contend.

Of *Loams* and *Brick Earths*, we have ſeveral ſorts, and ſome approaching to *Clay*; others nearer *Marle*; differing alſo in colour; and if it be not too rude, mingled in juſt proportion with other Mould, an excellent Ingredient in all ſorts of *Earth*, and ſo welcome to the Huſbandman, and the Gardiner eſpecially, as nothing does well without a little daſh of it.

Of *Marle*, (of a cold, ſad nature, a ſubſtance between *Clay* and *Chalk*) ſeldom have we ſuch quantities in Layers, as we have of the forementioned *Earths*; but we commonly meet with it in places affected to it, and 'tis taken out of Pits, at ſeveral Depths, and of divers Colours, red, white, gray, blue, all of them unctuous, of a ſlippery nature, and differing in Goodneſs; for being pure and immixt, it ſooner relents after a Shower, and when dryed again, ſlackens, and crumbles into Duſt, without induration, and growing hard again: They are profitable for barren Grounds, as abounding with *Nitre*; and ſometimes there has been found in *Marle Delfs*, a *Vitriolic* Wood, which will kindle like *Coal*.

Laſtly, *Chalk*, which is likewiſe of ſeveral Kinds and Colours, hard, ſofter, fine, courſer, abſtergent, ſlippery and marly, and apt to diſſolve with the Weather into no unprofitable Manure: Some of them have a ſandiſh, others a blacker and light ſurface; and there is a ſort which produces ſweet Graſs, and aromatic Plants, and ſome ſo rank, eſpecially in the Valleys of very high Hills, as to feed not only Sheep, but other Cattle, to great advantage, as we may ſee in divers places among the Downs of *Suſſex*. But it has a peculiar virtue above all this, to improve other Lands, as we ſhall come to ſhew.

I forbear to ſpeak particularly of other *Argillaccous Fullers-Earth*, *Tobacco-Clay* dry and aſtringent, the white *Cimolia*, and the ſeveral fictile *Clays*; becauſe they are not ſo univerſal, and ſerviceable to the Plough and Spade; much leſs of *Terra Lemnia*, *Chia*, *Melitenſis*, *Hetruſca*, and the reſt of the *Sigillatæ*; nor of the *Bolus's*, *Rubrics*, and *Okers*, *Figuline*, *Stiptic*, *Smegmatic*, &c. as they are diverſly qualified for ſeveral uſes, *Medical*, and *Mechanical*; but content my ſelf with thoſe I have already enumerated.

Now beſides the Deſcription and Characters we have given of theſe ſeveral *Moulds* and *Earths*, as they reſide in their ſeveral Beds and Couches, there are divers other Indications, by which we may diſcover their *Qualities* and *Perfections*; as amongſt other, a moſt infallible one is, its diſpoſition to melt, and crumble into fine morſels, not turn to Mud and Mortar, upon the deſcent of gentle Showers, how hard ſoever it ſeem before, and if in ſtirring it riſe rather in *Granules*, than maſſy Clods.

If excavating a Pit, the Mould, you exhauſt, more than fill it again, *Virgil* tells us 'tis good Augury; upon which *Laurembergius* affirms, that at *Wittemberg* in *Germany*, where the Mould lies ſo cloſe, as it does not repleniſh the Foſs out of which it has been dug, the *Corn* which is ſown in that Country ſoon degenerates into *Rye*; and what is ſtill more remarkable, that the *Rye* ſown in *Thuringia* (where the *Earth* is leſs compacted) reverts, after three Crops, to be Wheat again.

My Lord *Bacon* directs to the obſervation of the *Rainbow*, where its extremity ſeems to reſt, as pointing to a more roſcid and fertile Mould; but this, I conceive, may be very fallacious, it having two Horns, or Baſes, which are ever oppoſite.

But the Situation and Declivity of the Place is commonly a more certain mark; as what lies under a Southern, or South-Eaſt riſing ground; but this is alſo eligible according to the purpoſes you would employ it for; ſome *Plants* affecting hotter, other colder expoſures; ſome delight to dwell on the Hills, others in the Vallies, and cloſer

Seats; and ſome again are indifferent to either; but generally ſpeaking, moſt of them chuſe the warm, and more benign; and the Bottoms are univerſally fertile, being the recipients of what the Showers bring down to them from the Hills and more elevated parts.

Another infallible Indication is the nature, and floridneſs of the *Plants*, which officiouſly it produces; as where *Thiſtles* ſpontaneouſly thrive; where the *Oak* grows tall and ſpreading; and as the Plant is of *kind*, ſo to prognoſtic for what Tillage, Layer, or other uſe, the Ground is proper; *Tyme*, *Strawberries*, *Bettony*, *Sorall*, &c. direct to Wood; *Camomile*, to a Mould diſpoſed for *Corn*, and I add, to Hortulan Furniture; *Burnet*, to Paſture; *Mallows* to Roots, and the like, as my Lord *Verulam* and others obſerve.

On the contrary, ſome Ground there is ſo cold, as naturally brings forth nothing but *Gorſe*, and *Broom*, *Holly*, *Yew*, *Juniper*, *Ivy*, *Box*, &c. which may happily direct us to the Planting of *Pine*, *Firs*, the *Phillyreas*, *Laurel*, *Spaniſh-Broom*, and other perennial Verdures in ſuch places.

Moſs, *Ruſhes*, *Wild-Tanſy*, *Sedge*, *Flags*, *Fern*, *Yarrow*, and where Plants appear wither'd or blaſted, ſhrubby, and curl'd, (which are the effects of immoderate Wet, Heat, and Cold interchangeably) are natural Auguries of a curſed Soil: Yet I have obſerv'd ſome *Ferny Grounds* proper enough for *Copp'ce* and *Foreſt-Trees*. Thus as by the *Plant* we may conjecture of the *Mould*; ſo by the *Mould* may we gueſs at the *Plant*: The more *herbaceous* and tender, ſpringing from the gentle Bed; the courſer and rougher Plants, from the rude and churliſh: And as ſome *Earths* appear to be totally barren, and ſome though not altogether ſo unfruitful, yet wanting *Salacity* to conceive, Vigor to produce, and ſenſibly eluding all our Pains; ſo there is other, which is perpetually pregnant, and this is likewiſe a good Prognoſtic.

Upon theſe, and ſuch like hints, in propoſals of tranſplanting *Spices* and other exotic Rarities, from either *Indies*, the Curious ſhould be ſtudious to procure of the natural Mould in which they grow (and this might be effected to good proportion, by the balaſting of Ships) either to plant, or nouriſh them in from the *Seed*, till they were of age, and had gained ſome ſtability of Roots and Stem, and become acquainted with the *Genius* of our *Climate*; or for Eſſays of Mixtures, to compoſe the like.

By the Goodneſs, Richneſs, Hungrineſs and Tincture of the *Water* ſtraining through Grounds, and by the Weight and Sluggiſhneſs of it, compared with the lighter, conjecture alſo may be made, as in part we have ſhewed already.

To conclude, there are almoſt none of our *Senſes*, but may of right pretend to give their Verdict here: And *Firſt*,

By the *Odour* or *Smell*, containing (as my Lord *Verulam* affirms) the juice of *Vegetables* already as it were concocted and prepared; ſo as after long Drowths, upon the firſt Rains, good, and natural Mould will emit a moſt agreeable Scent; and in ſome places (as *Alonſo Barba*, a conſiderable *Spaniſh* Author teſtifies) approaching the moſt raviſhing Perfumes; as on the contrary, if the Ground be diſpoſed to any *Mineral*, or other ill quality, ſending forth *Arſenical*, and very noxious Steams; as we find from our Marſhes and Fenny-grounds.

By the *Taſte*, and that with good reaſon; all *Earths* abounding more or leſs in their peculiar *Salts*, as well as *Plants*; ſome ſweet and

more grateful; others bitter, mordacious, or aſtringent: ſome flat and inſipid; all of them to be detected by *percolation* of untainted Water through them; though there be who affirm, that the beſt *Earth*, like the beſt *Water*, and *Oyl*, has neither Odour nor Taſte.

By the *Touch*, if it be *tenera*, fatty, deterſive, and ſlippery; or more aſperous, gritty, porous and friable; likewiſe if it ſtick to the fingers like Bird-lime, or melt, and diſſolve on the tongue like Butter: Furthermore, good and excellent *Earth* ſhould be of the ſame conſtitution, and not of contrary, as ſoft and hard; churliſh and mild; moiſt and dry; not too unctuous, nor too lean, but reſoluble, and of a juſt and procreative temper, combining into a light, and eaſily crumbling Mould; yet conſiſtent, and apt to be wrought and kneaded, ſuch as having a *modicum* of *Loam* naturally riſing with it, to entertain the Moiſture, does neither defile the Fingers, nor cleave much to the Spade, which eaſily enters it, and ſuch as is uſually found under the Turf of Paſture-grounds, upon which Cattel have been long fed and foddered. In a word, *that* is the beſt *Earth* to all Senſes, which is of a blackiſh gray, cuts like Butter, ſticks not obſtinately, but is ſhort, light, breaking into ſmall Clods; is ſweet, will be temper'd without cruſting or chapping in dry weather, or (as we ſay) becoming Mortar in wet.

Laſtly, by the *Sight*, from all the Inſtances of *Colour*, and other viſible Indications: For the common Opinion is, (though long ſince exploded by *Columella*) that all hot, and choleric Grounds, are *red* or *brown*; cold and dry, *blackiſh*; cold and moiſt, *whitiſh*; hot and moiſt, *ruddy*; which yet, Exhalations from *Minerals*, the Heat of the Sun, and other Accidents may cauſe; but generally, they give preeminence to the darker *Grays*; next to the *Ruſſet*; the clear *Tawny* is found worſe; the light and *dark-aſh* colour (light alſo of weight, and reſembling Aſhes) good for nothing; but the *yellowiſh-red* worſt of all. And all theſe are fit to be known, as contributing to noble and uſeful *Experiments*, upon due and accurate Compariſons, and Enquiries from the ſeveral Particles of their Conſtitutions, Figures, and Modes, as far at leaſt, as we can diſcover them by the beſt auxiliaries of *Microſcopes*, *Lotions*, *Strainers*, *Calcinations*, *Triturations* and Grindings; upon ſuch diſcovery to judge of their qualities, and by eſſaying variety of Mixtures, and imitating all ſorts of *Mould*, *foreign* or *indigen*, to compound *Earths* as near as may be reſembling the natural, for any ſpecial or curious uſe, and thereby be enabled to alter the Genius of Grounds, as we ſee occaſion.

The conſideration of this it was, which gave me the Curioſity to fall upon the examining of a Collection I had made of ſeveral ſorts both of *Earth* and *Soils*, ſuch as I could find about this Territory; whereof ſome I waſhed, to find by what would melt, reſide, or paſs away in the percolation, of what viſible Figure they chiefly ſeemed to conſiſt, armed as I was with an indifferent *Microſcope*, of which be pleaſed to take this brief account.

Gravelly and *Arenous* Earths of ſeveral ſorts, before they were waſhed, appeared to be, moſt of it, rough *Chryſtals*, of which ſome very tranſparent and gemmy; few of them ſharp or angular, but roundiſh; mixed with Atoms and Particles of a mineral hue, which being well dried, and bruiſed on a hard ſerpentine Stone, and *Mullar* of the ſame, was with little labour reduced to an impalpable whitiſh Sand,

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untranſparent, as it happens in the bruiſings of moſt, though never ſo diaphanous Bodies, which may be ſo reduced.

Yellow Sand had the appearance of Amber; bruiſed, an untranſparent paler Sand.

Fat rich Earth, full of black ſpots, without much diſcolouring the Water (as hardly did any of the Sands of all) being dried, was reduced to a delicate ſandy Duſt, with very little brightneſs.

Marſh Earth contained a conſiderable quantity of Sand, the reſt reſembled the fat Earth.

The *Under-paſture Mould* had likewiſe a ſandy mixture, and what paſſed with the Water after evaporation, ſeemed to be an impalpable, and very fine untranſparent Sand.

Clay conſiſted of moſt exceeding ſmooth and round Sands, of ſeveral opacous Colours.

Potters-Earth, of different ſorts, ground ſmall, became like Sand, of a yellowiſh gray, and other Colours, exceeding polite and ſmooth.

A certain *yellowiſh loamy Earth*, which had been brought to me, with ſome *Orange-Trees* out of *Italy*, was reduced to a bright ſoft Sand, appearing more *gemmy* than in the other *Loams*.

Chalk reſembled fine white Flower, and ſome of it ſparkling, eſpecially the harſher ſort; but the tender, not.

Fullers-Earth appeared like *Gum Tragacanth*, a little wetted, ſeemingly ſwelled, yet gliſtering; but when reduced to a fine Duſt, a ſmooth Sand.

Tobacco-Earth, not much bruiſed, was juſt like white Starch; waſhed and well dried, it reſembled the whiteſt Flower of *Wheat* a little candied: I had not the opportunity of examining the ſeveral ſorts of Marles: and ſo I proceed to the *Dungs*.

Neats-Dung, (the Cattel fed only with Fodder, or little Graſs, for 'twas in the Winter I made my Obſervations) appeared to be nothing but Straws in the entire ſubſtance, and Colour little alter'd, ſave what a certain ſlippery Mucilage gave them, ſprinkled with a gliſtring Sand like Atoms of *Gold*; but upon waſhing and drying again, the tenacious Matter vaniſhed, and the Straws appeared ſeparated and clear.

Sheeps-Dung was much like the former, only the ſpires and blades of a fine ſhort Graſs conglomerated and rolled up in the Pellets, and the Glew about it leſs viſcous, but it paſſed alſo away in the lotion.

Swines-Dung had the reſemblance of dirty Bees Wax, mingled with Straws and Husks, which ſeemed like candied *Eringo*, and ſome like *Angelica* Roots.

The *Soil of Horſes* appeared like great Wiſps of Hay, and little Straws, thin of Mucilage, and which being waſhed, was eaſily to be diſcerned by a naked Eye.

Deers-Dung much reſembled that of *Sheeps*.

Pigeons-Dung conſiſted of a ſtiff glutinous matter, eaſily reducible to Duſt of a gray Colour, with ſome husky Atoms, after dilution. Laſtly,

The *Dung* of *Poultry*, was ſo full of Gravel, ſmall Stones, and Sand, that there appeared little or no other ſubſtance, ſave a very ſmall portion both of white and blackiſh viſcous Matter twiſted up together; of all the other, the moſt fœtid and ill ſmelling.

Theſe were all I had Time and Leiſure to examine; I cannot ſay with all the Accurateneſs they were capable of, but ſufficiently to encourage the more Curious, and to ſatisfy my ſelf, that the very fineſt Earth, and beſt of Moulds, however to appearance mix'd with divers imperfect Bodies, may, for ought we know, conſiſt more of *ſandy Particles*, than of any other whatſoever; at leaſt, if from this *Criterion* we may be allowed to pronounce what they ſeem to the Eye, *Sands*, *Cryſtals*, or *Salts*, call them what you pleaſe; the Conſideration of which being ſo univerſally the Cauſe of *Vegetation*, was no ſmall Inducement to me to ſee, if by examining the ſeveral *Earths*, (though but by a curſory inſpection) I might poſſibly detect, what Rudiments of ſuch a *Principle* there were lurking in them, abſtractedly taken; not that I opine *Earth* to be *Salt* alone, and nothing elſe, (though perhaps little more beſides *Sulphur*) for ſo it produces no Vegetable that I know of, without *Water* to diſſolve and qualify it for Inſumption, and perhaps ſome other vegetable Matter, fitted to manure and receive the *Seeds*, and keep the Plant ſteady; which yet, for ought I can diſcern, is alſo but a finer ſort of *Sand*, the Clammineſs of it being rather ſomething extrinſical and accidental to it, than any Thing natural, and originally conſtitutive: For, the Combination of theſe ſeveral Moulds, which gives the Ligature, Slipperineſs, and a diverſe Temper, ſeems rather to be cauſed by the perpetual and ſucceſſive rotting of the *Graſs*, *Plants*, *Leaves*, *Branches*, *Moſs*, and other Excreſcencies growing upon it (than any peculiar or ſolitary Principle apart) which in long tract of Time, has amaſſed together a Subſtance *heterogeneous* to the ruder Particles, which after the dilutions of the Superficies (that is, of the rich and fatter Mould) appears to be little other than *Sand*, or fixed *Salts*, of various Figures and Colours; ſince even the moſt obdurate and flinty *Pebble* beaten and ground to Powder, or by Calcination reduced to an inpalpable Duſt, is as fine both to the Eye, and ſmooth to the Touch, as the moſt *Smectic* Earths, and *Marles* themſelves; ſuch, at leaſt, as you ſhall collect from the Subſidence (to Appearance) of the moſt Cryſtal Waters, precipitated by deliquated Oil of *Tartar*, or the like; and the more they be ſubdued and broken, the harder they will prove, if (cleared of their *nitrous* Parts) they paſs the Potter's Fire, however they ſeemed before to be of different Conſtitution: This is evident in Veſſels made of *Tobacco-Clay*, or whatever the Material be, which has of late been ſo ſucceſsfully employed, for the finding out of a Compoſition (if I may ſo call it) nothing inferior to the hardeſt *Porcelain*, and almoſt as beautiful (by a worthy Member of this Society.) And now upon Contemplation of that almoſt univerſal Ingredient of *Sand*, through all our Tryals, I cannot but incline to the Sentiment of that excellent *Philoſopher*, as well as *Phyſician*, (the learned * Dr. *Liſter*) that *Sand* might be the firſt *Mantle*, and univerſal Covering, of the *whole* newly created *Earth*.

Dr. Hooke.

* *See his Diſcourſe upon a Map, diſcovering Sands and Clays, reduced to Tables, preſented to the R. Society.*

But to return to our ſuperficial Earth, which we call the *Mould*, I affirm it to grow, and increaſe yearly in Depth, from the Cauſes aforeſaid; and in ſome Places to that Proportion, as to have raiſed no inconſiderable Hills and Eminences, by the accidental Fall, and rotting of Woods and Trees; ſuch as *Birch*, and *Beech*, &c. which are not of a Conſtitution to remain long in the Ground (as *Fir*, *Oak*, *Elm*, and ſome other Timber will do, and grow the harder) without Cor-

ruption, and relenting into Mould as ſoft and tender, as what they firſt were ſown or planted in; and of this I am able to give undeniable Inſtances. I inſiſt not here on the perpetual Succeſſions, and generations of *Flints*, and other Stones, in the ſame Places where they have been ſedulouſly gathered off, by many (not improbably) thought to proceed from *Worm-caſts*, hardened by the Air, and a certain *lapideſcent Succus* or Spirit which it meets with: And this, for happening moſt on *Downs*, very much expoſed (yet undiſturbed) is the more probable; as, on the other Side, it eſtabliſhes our Conjecture of the pureſt Moulds being capable of ſuch a Change; that which is thus caſt up by the Worms, being ſo exceedingly elaborated and refined: Nor perhaps are all thoſe innumerable *Perforations*, eſpecially through the hardeſt Surfaces, the Labour of *Worms* alone, but the Effect of ſome *Nitrous* Spirit, that ſpews out thoſe *Molculæ*: In the mean Time, let no Man be over-confident, that becauſe ſome *Earths* are ſoft, fat, and ſlippery, they may not poſſibly conſiſt of *Sands* (of which there are ſo many Kinds,) ſince 'tis evident, that even all foſſible Bodies, which can be reduced and brought to Sands, may by Contrition of the Particles be render'd ſo minute, as to emulate the fineſt *Earths* we have enumerated; the Compactedneſs, and accidental Mixtures reſulting (as we affirm) from Things Extrinſical, not excluding Exhalations, Paſſage of Liquors, and ſeveral Juices to them, or conveyed by ſubterraneous Steams and Influences, be the Stones or Rock *Glareous*, *Metallic*, *Teſtaceous*, or any other Concretes whatſoever. And what if we ſhould indeed ſuſpect all *Earth* to be arrant *Salt*, nay *Glaſs*; and *that* Glaſs, how hard ſoever, the Offspring and Child of *Water*, the moſt Fluid, Cryſtalline, ſincere and void of all other Qualities? 'Tis not impoſſible, I think, but by the different Texture of its Parts, even that liquid *Element* may be brought to the Conſiſtence of a moſt different Body to what it appears: We know, that *Water* (beſides that it was the firſt immenſe Body which inveſted the *Chaos*) was by ſome thought to be the *Mother* of *Earth*, (nay the *principia ſoluta* of all mixts whatſoever,) and that the bottom of the Sea was made by a perpetual *Hypoſtaſis* or Subſidence, which precipitated from every Part of it to the Centre. I do not ſtand to juſtify theſe Speculations, but to illuſtrate what I am about; namely, that *Water* is apt enough to be condenſed and made hard; and crude *Mercury*, and running Metal, *Cryſtals*, *Gems*, and *Pearls*, do more reſemble it, than that dirty and opake Body, which we uſually denominate *Earth*: Beſides, we find, how divers *Waters*, not only indurate, and petrify other Subſtances, but grow into *Stones*, and leave a rocky *Callus* where they drop, and continually paſs, and that all Sands and Stones are not Diaphanous: Therefore that is no Eviction, but that they might once have been Fluid, ſince their Opacity may be adventitious, and proceed from ſundry Accidents; ſo as granting this *Hypotheſis*, we are leſs to wonder, that this Matter is above all other, ſo diſpoſed to *Vegetation*, and apt to produce *Plants* endued with Colour, Weight, Taſte, Odour, and with ſundry medical and other Virtues, as I think that excellent Philoſopher Mr. *Boyle* (the great Ornament of this *Society*) does ſomewhere make out from the various *Percolations*, *Concoctions*, and *Circulations* of that fruitful *Menſtruum*: And if that be true, that there is but one *Catholic*, *homo-*

homogeneous, fluid Matter, (diverſified only by *Shape*, *Size*, *Motion*, *Repoſe*, and various *Texture* of the minute Particles it conſiſts of; and from which Affections of Matter, the divers Qualities reſult of particular Bodies;) what may not Mixture, and an attent Inſpection into the Anatomical Parts of the vegetable Family in time produce, for our compoſing of all ſorts of Moulds and Soils almoſt imaginable, which is the Drift of my preſent Diſcourſe? And why might not *Solomon* by this means have really had all kinds of *Plants* in his incomparable Gardens? even *Ebony*, *Cloves*, *Cinnamon*, and from the *Cedar* to the *Shrub*, ſuch as grew only in the remoteſt Regions; furniſhed (as he doubtleſs was) with ſo extraordinary an Inſight into all natural Things and Powers for the compoſing of Earths, and aſſigning them their proper Mixtures and Ferments. I do not here enquire, whether there be not a *Panſperme* univerſally diffuſed, individuated, and ſpecified in their ſeveral *Matrixes* and Receptacles *pro ratione mixti* (as they ſpeak) but I think there might very unexpected *Phænomena* be brought to light in vegetable Productions, did Men ſeriouſly apply themſelves to make ſuch poſſible Trials, as is in the Power of Art to effect; and how far *Soils* may be diſſembled, and the *Air* and *Water* attempered, (at leaſt for ſome Curioſities, which may give light to more uſeful things) I do not conclude; but I ſhould expect very rare and conſiderable things from an attentive and diligent Endeavour. To this end, the raiſing of artificial *Dews* and *Miſts*, impregnated with ſeveral Qualities, for the more natural Refreſhment of *Exotic* Plants, were, it may be, no hard matter to effect; no more than were the Modification of the *Air* abroad, as well as in our more confined Reſerves, where we ſet them in for *Hyemation*, and during the moſt rigorous Colds. As for Mixtures of *Earths*; Plants, we know, are nouriſhed by things of like Affinity with the Conſtitution of the Soil which produces them; and therefore 'tis of ſingular Importance, to be well read in the *Alphabet* of *Earths* and *Compoſts*: For, as we have ſaid, Plants affect the *Marſh*, *Bog*, *Mountain*, *Valley*, *Sand*, *Gravel*, *fat* and *lean* Mould, according to their Tempers; and for want of Skill in this, the ſame Plant not only languiſhes and ſtarves, but ſome we find to grow ſo luxuriant, as to change their very Shapes, Colours, Leaves, Roots, and other Parts, and to grow almoſt out of knowledge of the skilfulleſt *Pythologiſts*; not here to ſpeak of what Alterations do accrue from tranſplanting and Irrigations alone. I mention this, to incite the Curious to eſſay artificial Compoſitions in defect of the natural Soil; to make new *Confections* of Earths and Moulds for the entertaining of the moſt generous and profitable Plants, as well as curious; eſpecially if, as I hinted, we could skill to modify alſo the *Air* about them, and make the Remedy as well *regional* as *topical*; and why not for other Fruits (Strangers yet amongſt us) as for *Oranges*, *Lemons*, *Pomegranats*, *Figs*, and other precious Trees, which of late are become almoſt endenizon'd amongſt us, and grow every Generation more reconcileable to our Climate? For (according to * *Theophraſtus*) 'tis not the exceſſive Fatneſs and Richneſs of the Soil, which invites theſe *Exotics* and Varieties to ſtay with us, or indeed any other Plants to proſper, but ſomething which is *connatural* and ſuitable to the *Species*.

* Ἡγὴ πίειρα πάνταν ἐστὶ ξυμφέρει αὐτῶν. Theoph. l. 2. c. 5.

Here we might enlarge upon the ſeveral Enquiries formerly ſuggeſted: As, how far *Principles* might be multiplied, and differenced by Alteration and Condenſation? Whether *Earth*, ſtripp'd of all *Hetero-*

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geneity and ununiform Particles, retains only Weight, and an inſipid Siccity? And whether it produces or affords any thing more than *Embracement* to the firſt Rudiments of *Plants*, Protection to the Roots, and Stability to the Stem; unprolific, as they ſay, till married to ſomething of a more maſculine Virtue, which irradiates her Womb; but otherwiſe, nouriſhing only from what it attracts, without any *active* or *material* Contribution. 'Tis in the mean time wonderful to conſider, how ſuch vaſt, tall, and *monſtrous Trees*, ſuch as we find among the *Firrs*, *Pines*, and other *Alpeſtrals*; whoſe Footing and Roots inſinuate into the moſt dry and impenetrable Rocks, without any *Earth* or *Mould* (as we call it) which ſeems to contribute any thing to theſe *Vegetables*, (expos'd as they are to the moſt rigid Colds, fierce Winds, and other Inclemencies of Weather) if the *Rains*, *Dews*, *Miſts*, the *Air*, &c. or other viſible *Principle*, appear in no proportion to the Stature, Bulk, and Subſtance of theſe goodly Trees: Theſe indeed, with many other *Queries*, do appoſitely come in here; but it would perhaps render this Diſcourſe more prolix than uſeful, to enter upon them in *detail*; nor is it for me to undertake Speculations of ſo abſtruſe a Nature without unpardonable Oſtentation; and therefore having only offer'd ſomething towards the Diſcovery of the great Varieties and Choice of *Earths*, (ſuch as we *Gardiners* and *Ruſtics* for the moſt part meet with in our Grounds;) my next Endeavour ſhall be to ſhew, how we may improve the beſt, and preſcribe Remedy to the worſt, by *Labour* and ſtirring only; which being the leaſt artificial, approach the neareſt to Nature.

At the firſt breaking up of your Ground therefore, let there be a pretty deep Trench or Furrow made throughout, of competent Depth (as the manner is of experienc'd *Gardiners*) the Turf being firſt pared off, and laid by itſelf, with the firſt Mould lying under it, and that of the next in Succeſſion, that ſo they may both participate of the Air, Showers, and Influences, to which they are expoſed; and this is to be done in Severals, as deep as you think fit, that is, ſo far as you find the *Earth* well-natur'd; or you may fling it up in ſeveral ſmall Mounds or Lumps, ſuffering the Froſts and Snows of a Winter or two (according as the Nature of it ſeems to require) to paſs upon them, beginning your Work about the Commencement of *Autumn*, before the Mould becomes too ponderous and ſluggiſh; though ſome there are who chuſe an earlier Seaſon, and to open their Ground when the *Sun* approaches, not when he retires: But certainly, to have the whole *Winter* before us, does beſt temper and prepare it for thoſe impregnating Agents.

In ſeparating the Surface-mould from the deeper, whether you make a Trench, or dig Holes to plant your Trees in, be it for *Standards*, *Eſpalieres*, or *Shrubs*; the longer you expoſe it, and leave the Receptacles open (were it for two whole *Winters*) it would ſoon recompenſe your Expectation; and eſpecially if when you come to plant, you diſpoſe of the beſt and fatteſt Earth at the bottom; which, if it be of ſweet and ventilated *Mud* of *Ponds*, or *Highway-duſt*, were preferable to all the artificial *Compoſts* you can deviſe. In defect of this (where it cannot be had in quantity) caſt in the upper *Turfs* (if not already conſumed) the *Sod* downwards, with the next adhering Mould for half a foot in thickneſs; on this, a Layer of well-matur'd *Dung*; then as much of the *Earth* which was laſt flung out, mixing them very well together. Repeat this Proceſs for *Kinds*, *Mixture*, and *Thick-*

neſs, till your *Trenches* and *Holes* be filled four or five Inches above the Level or *Area* of the Ground, to which it will quickly ſubſide upon the firſt Refreſhings, and a very gentle treading to eſtabliſh the Tree. *Fruit* planted in ſuch Mould, you will find to proſper infinitely better, than where young Trees are clapp'd in at adventure in new broken-up Earth, which is always cold and ſluggiſh, and ill complexion'd; nor will they require (as elſe they do) to be ſupplied every foot with freſh Soil, before they be able to put forth luſty and ſpreading Roots; but which it is impoſſible to convey to them, ſo as to affect the under-parts, by excavating the Ground, and undermining the Trees (after once they arrive to any Stature) without much Trouble and Inconvenience, and the manifeſt retarding of their Progreſs.

If you will plant in *Pits* and *Holes*, and not give your Ground an univerſal *Trenching* (which I prefer) make them the larger, (*five foot* at the leaſt ſquare) but not above half a *yard*, or two *foot* deep, according to the Nature of the Tree. In dreſſing the *Roots*, be as ſparing as poſſible of the *Fibres*, ſmall and tender Strings, (which are as it were the *Emulgent Veins* which inſume and convey the Nouriſhment to the whole Tree;) and ſuch of the ſtronger and more confirmed Parts which you trim, cut ſloping, ſo as the Wound may beſt apply to the Earth. The *Head* or Top I adviſe you to let alone, till after the moſt penetrating Colds be paſs'd; and then, about *February*, to take them off, and ſhape them as you pleaſe, and as the skilful *Gardiners* can direct you; or as it is deſcrib'd *graphically* in *Monſieur de la Quinteny*'s *Compleat Gardiner*, and his induſtrious *Epitomizers*. Now the *Earth* in which you thus plant your *Fruit-Trees*, will require four annual *Stirrings*; namely, at the Approach of *March*, a Spade-bit deep, covering it with ſome *mungy* Stuff, Heaps of *Graſs* or *Weeds*, to protect it from the parching *Sun*: In *May* following, after a gentle Rain, ſtir again, but not ſo deep as to moleſt the ſubnaſcent *Weeds*. Thirdly, in the Month of *July*, and laſtly *October*, after the ſame Method you are taught in *March*.

This, for *Standards* planted out for good and all: The *Nurſery* requires a buſier Proceſs, as 'tis excellently deſcrib'd by 'Squire *Cotton* in that late incomparable *Manual* publiſh'd by that worthy Perſon. Briefly thus; three Weeks before *Midſummer* lay ſome green *Fern* about the Ranks, after the Ground is labour'd, to defend it from the Heats: In which Work Care muſt be alſo had not to offend the tender Roots; therefore you ſhall ſtir it deeper in the middle of the Lines or Interſtices; and when *Winter* comes, bury the *Ferns* in the Place, by making little Trenches, or rather taking away ſome of the Earth you ſhoulder'd up, when the Stocks were firſt drawn out of the *Seminary*, and planted in thoſe Rows; yet ſo, as to leave it ſomewhat higher than the *Area*, to ſecure them from the Froſts. In *March* following, ſtir your *Nurſery* again, chopping and mincing in the *Fern*, and mingling it with the looſen'd *Mould* which you took from the *Imps* when you firſt applied the *Fern*: then back them up again as before. Repeat this *three* or *four* Years ſucceſſively, till your Stocks are fit to graff on. An *Orchard* thus planted, *Spring* and *Autumnal* ſtirring of the Mould about them, is of incredible Advantage; and even during the hotteſt Summer Months carefully to abate the *Weeds* (but not to dig above a quarter of a *Spit* deep, for fear of expoſing them to the *Sun*, unleſs it be after plentiful Showers) is very neceſſary.

There are, I confeſs, who fancy that this long expoſure of *Earth* before it be employed for a Crop, cauſes it to exhale, and ſpend the virtue which it ſhould retain; but, provided nothing be ſuffered to grow on it whilſt it lies thus rough and *fallow*, there's no danger of that; there being in truth, no Compoſt, or *Lætation* whatſoever, comparable to this continual Motion, *Repaſtination*, and turning of the Mould with the Spade; the pared-off Turf (which is the very fat, and *Efflorescence* of the *Earth*) and even *Weeds* with their vegetable *Salts*, ſo collected into heaps, and expoſed, being reduced, and falling into natural, ſweet, and excellent Mould. I ſay, this is a marvellous advantage, and does in greater meaſure fertilize the Ground alone, without any other additament: For the *Earth*, which was formerly dull and unactive, or perhaps producing but one kind of Plant, will by this culture diſpoſe it ſelf to bring forth variety, as it lies in depths, be it never ſo profound, cold and crude, the nature of the Plant always following the Genius of the Soil; but indeed requiring time, according to the depth from whence you fetch it, to purge and prepare it ſelf, and render it fit for conception, evaporating the malignant *Halitus*'s and Impurities of the impriſoned Air, laxing the Parts, and giving eaſy deliverance to its Offspring.

I do not diſpute, whether all Plants have their *primigenial Seeds*, (as in truth I believe they have) and that nothing emerges ſpontaneouſly, and at adventure; but, that theſe would riſe freely, in all places, if Impediments were removed, (of which ſomething has already been ſpoken;) and to ſhew, how pregnant moſt *Earths* would become, were theſe Indiſpoſitions cured, and that thoſe ſeminal Rudiments, wherever latent, were free to move, and exert their virtue, by taking off theſe Chains and Weights which fetter and depreſs them.

It is verily almoſt a Miracle to ſee, how the ſame Land, without any other Manure or Culture, will bring forth, and even luxuriate; and that the bare raking and *combing* only of a Bed of *Earth*, now one way then another, as to the *Regions* of Heaven, and *Polar* Aſpects, may diverſify the annual Production, which is a *Secret* worthy to be conſidered: I am only to caution our Labourer as to the preſent work, that he do not ſtir the Ground in over-wet, and ſlabby Weather; that the *Sulcus* or Trench, be made to run from *North* to *South*, and that, if there be occaſion for opening of a freſh piece of *Earth*, for preſent uſe, he dig not above one *Spit*-deep, which will be ſufficient to cover the Roots of any plantable Fruit, or other Tree; otherwiſe, not to diſturb it again, till the *March* following; when, if he pleaſe, and that the Ground ſeem to require an haſtier maturation, there may be a Crop of *Beans*, *Peaſe*, or *Turneps* ſown upon it, which will mellow it exceedingly, and deſtroy the noxious Weeds; after which, with a ſlight *repaſtination*, one may plant, or ſow any thing in it freely; eſpecially *Roots*, which will thrive bravely; and ſo will *Trees*, provided you plant them not too deep, but endeavour to make them ſpread, and take in the ſucculent virtue of the upper Mould; and therefore too deep trenching is not always profitable, unleſs it be for *Eſculent Roots*, ſuch as *Carrots*, *Parſneps*, *Beets*, and the like; ſince *Trees*, eſpecially *Fruit*, would be tempted even by *Baits*, to run ſhallow; ſuch as penetrate deep, commonly ſpending more in Wood and Leaves, than in the burden for which we plant them.

There is only this Caution due, that you never plant your *Roots* where the ſtiff and churliſh Ground is likely to be within reach of them;

them; for though it be neither neceſſary nor convenient they ſhould penetrate deep, it is yet of high importance they ſhould dilate and ſpread, which they will never do in obſtinate and inhoſpitable Land (but revert back towards the milder, and better natured Mould,) which crumples the Roots, and perverts their poſture, to their exceeding damage. And to this Infirmity our rare *Exotic Plants* and *Shrubs* are moſt obnoxious, confined as they are to their *Wooden Caſes*, and *Teſtaceous* Priſons, and therefore require to be frequently trimm'd, and ſupply'd with freſh and ſucculent Mould to entertain the *Fibres*, which elſe you will find to *mat* in unexplicable Intanglements, and adhere to the ſides of the Veſſel, where they dry or corrupt.

Having ſaid thus much of the *Natural*, I ſhould now come to *Artificial* Helps, by application of *Dungs*, and *Compoſts*; and indeed *ſtude ut magnum ſterquilinium habeas*, was old and good advice; but for that there be who affirm any Culture of the *Earth* preferrable to *Dung*, even things ſo ſlight as the haume of *Peas* and *Lupines*, or any other *Pulſe* (for when I ſpeak of *Dungs*, I mean thoſe excrementitious and ſordid Materials which we commonly heap up and lay upon our Grounds;) I beg your Patience to ſuſpend a while my ſtirring that leſs pleaſant mixture, and, till it be well aired and fit for uſe, proceed a little farther on our former Subject, and try what aid we may yet expect from more kind and benign means, before we come to the groſs and violent. For beſides that ſuch *Compoſt* (at leaſt ſo prepared as it ought to be) is not every where, nor always to be had in quantities; to confide in *Dungs* and *Ordure*, is not ſo ſafe, and of that importance to our Husbandman, as ſome are made believe; ſince if we ſhall look back into the beſt Experience of * elder days, we ſhall find, they had very little, or no uſe at all of *Stercoration*. I know ſome there be, who attribute this neglect to the natural Fertility of the Country, that 'tis the buſy Nurſe of *Vermin*, and nauſeous accidents; but waving theſe, (without intending to deſert the aid of Soil in place and time,) I proceed with what I call more natural helps; namely, as we have ſhewed, by *opening*, *ſtirring*, and *ventilating* the *Earth*, and ſometimes its contrary, by *coverture*, *ſhade*, *reſt*, and forbearance for a ſeaſon, as we daily ſee it practiſed in our worn-out and exhauſted Lay-fields, which enjoy their *Sabbaths*. 'Tis certain, that for our *Gardens* of Pleaſure, the faireſt Beauties of the *Parterre* require rather a fine, quick, friable, and well-wrought Mould, than a rank or richly dunged: And even all *Fruit Trees* affect not to ſtand upon artificial and looſe *Compoſts*, but in naturally rich, and ſweet Mould, within the ſcent and neighbourhood of well conſumed *Soil* for the next *Layer* under, and above; ſo as the virtue thereof may be derived to it through a *Colature* of natural Earth; thoſe forcing mixtures being more proper for *Annuals*, and *Exotic* Toys, which having but little time to live, refuſe no aſſiſtances, whilſt Trees of longer durance, care not much for accelerations.

* Heſiod.

I ſhall here then begin with an *Experiment* I have been taught by a learned Perſon of this illuſtrious Body, from whom I have long ſince received the choiceſt Documents upon *this* and many curious Subjects. And firſt, That amongſt the Mechanical Aids, (wherein *Stercoration* has no Hand) *that* of pulverizing the *Earth* by Contuſion, and breaking it with Plough or Spade, is of admirable Effect, to diſpoſe it for the Reception of all the natural Impregnations we have been diſcourſing upon, as conſtant and undeniable, I think will be evinced.

Dr. Beal.

For

For the *Earth*, eſpecially if freſh, has a certain *Magnetiſm* in it, by which it attracts the *Salt*, Power or Virtue (call it either) which gives it Life, and is the reaſon of all the Labour and Stir we keep about it, to ſuſtain us; all *Dungings*, and other ſordid Temperings, being but the *Vicars* ſuccedaneous to this Improvement, which of all other, makes its Return of Fruit, or whatſoever elſe it bears, without imparting any of thoſe ill and pernicious Qualities, which we ſenſibly diſcover from forced Grounds; and that not only in the *Plants* which they produce, but in the very *Animals* which they feed and nouriſh.

I know, *Laurembergius* (ſomewhere) denies this, and that *Animals* in preparing *Chyle*, tranſmute, alter, and inſume what is only their proper Aliment, rejecting all that is ſuperfluous; but as our early *Aſparagus*, *Collyflowers*, and divers Roots, manifeſtly refute it, ſo does the Taſte of the Fleſh, and Milk of *Cattle*, eſpecially *Fowl*, that feed on the wild *Garlick*, Fenny-graſs, and other rank and putrid Things; not here to inſiſt on their ſweet, and delicate Reliſh upon their change of Food, or more odoriferous Paſture. But to the Experiment.

Take of the moſt barren *Earth* you can find, drain'd, if you pleaſe, of all its *Nitrous Salts*, and Maſculine Parts; reduce it to a fine Powder, (which may be done even in large Proportion, by a rude Engine, letting fall a kind of Hammer or Beetle, at the Motion of a Wheel;) let this pulverized *Earth*, and for the Time unceſſantly agitated, be expos'd for a *Summer* and *Winter*, to the Viciſſitudes and Changes of the Seaſons, and Influences of Heaven: By this *Labour*, and *Reſt* from Vegetation, you will find it will have obtain'd ſuch a generous and maſculine Pregnancy, within that Period, as to make good your higheſt Expectations: And to this belongs Sir *Hugh Platt*'s Contrition, or Philoſophical grinding of *Earth*; which upon this Expoſure alone, without manure of Soil, after the like Revolution of Time, will, as he affirms, be able to receive an *exotic* Plant from the fartheſt *Indies*, and cauſe all Vegetables to proſper in the moſt exalted Degree; and, to ſpeak magnificently with that induſtrious Man, to bear their Fruit as kindly with us, as they do in their natural Climates; and as Dr. * *Munting* pretends to have done in *Holland*. But a little to abate of this, modeſtly we may ſay, that this Culture (eaſy and ſimple as it is) will be found effectually able to render the Soil of a moſt extenſive Capacity, for the Entertainment of foreign and uncommon Plants. For to enumerate ſome of its Perfections; ſuch as refuſe *Dung*, and violent Applications, have *here* pure *Earth*; and ſuch as require Aid, a mellow and rich Mould, impregnated with all the Bleſſings which the Influences of the Heaven, and *Effloreſcence* of the *Earth* can contribute to it; fitted, as it is, for Generation, and yet ſo reſtrain'd from it, as greedily to receive the firſt *Seeds* which are committed to it, with a Paſſion and Fervency as it were of animal Love. What high and ſublime Things are ſpoken more upon this, I forbear to proſecute; but in Sir *Kenelm Digby*'s Diſcourſe of *Sympathetic Powder*, he affirms, that the *Earth* in the Years of Repoſe recovers its Vigor, by the Attraction of the vital Spirits, which it receives from the Air, and thoſe ſuperior Irradiations, which endow ſimple *Earth* with Qualities promoting *Fermentation*. And indeed, ſuch a vegetative Activity I have often obſerv'd in the bare expoſure of

* Munt. *Waare Offening der Planten.* Lib. 1. Cap. 56, & 65, &c.

ſome Plants but for a few Hours only, as has rais'd my Admiration; particularly in the *Aloe*, and other kinds of *Sedums*, which when to all Appearance ſhrunk, and ſhrivel'd up, have fill'd themſelves in a Moment, ſet out in the *Air*, when a very few drops of Water (at the ſame, that is, Winter Time) would certainly have made it rot, and turn to a Mucilage, as, to my Coſt, I have experienc'd. And theſe Ferments of the *Earth*, by this Amity, and genial Intercourſe with the Air, are innumerable, to concoct, digeſt, accelerate, and reſtore; equal to, yea, beyond any artificial Enforcements of *Dungs*, and *Compoſts* whatſoever. But to return to Duſt again; by the Toil we have mentioned, 'tis found, that Soil may be ſo ſtrangely alter'd from its former Nature, as to render the harſh, and moſt uncivil *Clay*, obſequious to the Husbandman, and to bring forth *Roots*, and *Plants*, which otherwiſe require the lighteſt and holloweſt Moulds.

In other Caſes and Affections, the *Earth* may be likewiſe fertiliz'd, as from without, ſo from within, by more recondite and *central* Cauſes, and Agitations, which if in Exceſs, may be allay'd with ſome *feminine*, or other Mixture; ſince oftentimes Qualities too intenſe, rather poiſon dry and cholerick Grounds, than conduce to their Advantage, as we ſhall come to ſhew; and that which makes a cold and moiſt Ground fertile, will deſtroy the contrary, as we ſee in the too free Applications of *Salt*; and therefore it requires no ordinary Dexterity, to be able to direct where, and what Remedies are to be adminiſtred; ſince we find it the ſame iu *Vegetable* Productions, as in the *Animal*, where Complections ſhould be ſuited; for want of which Care, through Avarice, and other ſordid Circumſtances, Noble Families themſelves are many times render'd Childleſs, which might elſe have multiply'd, and been perpetuated. To illuſtrate this by our preſent Subject: We find, that a thin ſeifing, or ſprinkling of *Aſhes*, has enriched all the higher Paſtures, when, where 'twas ſtrew'd too thick, it became totally barren: Sometimes again, defect of ſufficient Depth, may be cauſe of Sterility; and ſo it frequently happens, that the proper Remedy of ſome hungry and ſhallow Surface, is to ſuperinduce and lay more *Earth* upon it, and to find out the *Medium*, by diligent Tryals of ſome degrees of Depths in the ſame Soil; but ſolitary, ſingle, or over-haſty Experiments, before the *Earth* be prepar'd by ſome of our foremention'd Eſſays, may prove diſcouraging, and unſufficient, as my Lord *Bacon* has oft advertis'd us.

Earth is alſo ſometimes improv'd by Mixtures of Fern, rotten *Leaves*, and the pouriture of old Wood; the haulm of *Beans*, *Peaſe* and other *Legumina*, which heats and accelerates Concoction; for which, and all other *Medications*, the nature of the Mould is carefully to be examin'd, that Application be made accordingly; as for Inſtance, If it be *Sandy*, or other light mixed *Earth*, to imbody it with ſomething of a fatter nature, as *Lime*, or *Marle*, (for I yet forbear the touch of ordure or animal Compoſts, as the leaſt natural;) and be ſure ſo to ſtir, and lay it (eſpecially if with *Lime*) that it may not ſink too deep, and ſuddenly, as 'tis apt to do, and ſo deſert the Surface-mould, where it ſhould do the feat, and therefore it is to be the oftner renew'd. But *Marle* enters as properly here, and ſo does *Mud*, *Slub* of ſlimy *Waters*; eſpecially, if the Soil be gravelly and mixt, which it will ſadden and impinguate, and conſequently combine; but

if the *Gravel* be wet and cold, *Lime* is preferable: Wherefore the nature of the Mould ſhould be well examin'd before the Application; as here *arenous* and ſandy *Earth* wants Ligature, and beſides conſiſting of ſharp and aſperous Angles, wounds and galls, curls and dwarfs our Plants, without extraordinary Help, to render the Paſſages more ſlippery and eaſy; and therefore relenting *Chalks*, or *Chalk-marl*, is alſo profitable, with *Calcinations* of *Turf*, or *Sea-Wreck*, where it is at Hand; and if the Soil be exceeding bibulous, ſpread a Layer or Couch of *Loam*, diſcreetly mingled at the bottom, to entertain the Moiſture. In the mean time, there are yet ſome *Plants* which thrive almoſt in nothing ſo well, as in *Sand* alone, or with very little Mixture, nor *that* of any *Dung:* So *Melons* are ſaid to grow in *Jamaica*; and ſome vaſt Timber-trees have little or no Mould adhering to their Roots; ſuch is that beautiful Stranger, the *Japan-Lilly*, call'd by thoſe of *Guernſey* (from whence we only have them) *La belle de nuit*; and a certain *Palm* of the ſame *Japan*, which ſhrinks and dries at the leaſt touch of *Water*, as if it were laid before the *Fire*, which is, it ſeems, the only Remedy that reſtores it, or the ſudden replanting it in *Scales* of *Iron*, or the moſt burning *Sand:* But what if *Sand* it ſelf, however vulgarly reputed, be not ſo hot, or interiorly ardent, as 'tis given out to be? Indeed, for being of an open, and looſe Contexture, 'tis apt to put forth a forward *Spring*, as more eaſily admitting the *ſolar* Rays; but it does not continue, and is an Infirmity which may be remedied with *Loam*; which not only unites it cloſer for the preſent, but is capable in time to alter and change its very Nature alſo, ſo as too hot a *Compoſt* be no Ingredient with it.

Here I take Notice, that *Husbandmen* obſerve, a too clean and accurate gathering of *Stones* from off thoſe Grounds which lie almoſt cover'd with them, rather impoveriſhes than improves them; eſpecially where *Corn* is ſown; by expoſing it to Heat and Cold. Certain it is, that where they are not too groſs and plentiful, a moderate Interſperſion of the ſmaller *Gravel*, preſerves the *Earth* both warm and looſe, and from too ſudden Exhalation; whilſt the over-fine Grain, or too nice a Sifting, makes it apt to conſtipate, and grow ſtiff upon wetting; ſo as the tender *Seedlings* can hardly iſſue through; and this is a *Document* for ignorant *Gardiners*, who, when they have a fine *Flower*, think they can never make the Ground fine enough about them; yet the finer the *Plant*, or *Seed*, the finer ſhould the *Mould* be which entertains it; though when all is done, Trees thrive beſt, where they have eaſieſt Footing.

Chalky Grounds come next to be conſider'd, and they ſhould be treated like *Gravel*, *Sand*, and *Stony*, if harſh; but if of the melting kind, 'tis apt to mix with all the ſorts of Moulds; and being of it ſelf ſo husbanded, compoſes a kind of natural Soil fit for moſt Uſes ſought for, and of admirable Effect in dry Grounds.

Here now of courſe ſomething we are to ſpeak concerning *Calcinations*, all reducing of *Stone* into *Aſhes* being of excellent Uſe where *Lime* is upon any occaſion proper; and indeed all our *Compoſts* and *Dungings* ſerve but to this End, namely, ſo to qualify and mix the Soil, as may artificially anſwer to the varieties of the natural *Earth*, or ſuch a Conſtitution of it, as the skilful Husbandman requires: As for Inſtance, (ſince all Fertility is the reſult of Mixture contrary in Quality) if it want due Heat, to apply Additions of a fiery Nature;

and therefore 'twere profitable, if in the uſing *Lime* with *Turf*, and *Swarth*, it were laid alternatively, *Turf* on *Lime*, and *Lime* on *Turf*, in Heaps for ſix Months, by which Means it will become ſo mellow (and rich in *Nitrous Salts*) as to diſſolve, and run like *Aſhes*, and carry a much more cheriſhing Vigor, than if amaſſed in greater Quantity; and ſo, by a too violent Application, burn out, and exhauſt the vegetative Virtue which it ſhould preſerve. There is (by the way) this Caution to be uſed in burning of *Earth*, that though what is *torrified* into Blackneſs, will exceedingly fructify; yet, if it proceed to aduſtion beyond that Degree, it conſumes the *Nitre*, which is the Principle would be preſerved; as we ſhall come to ſhew, when we ſpeak of *Salts*, which we are the moſt carefully to keep entire, in all our *Animal* or other *Compoſts*: If once the *Nitrous Spirit* be quite mortify'd, the *Earth* produces nothing, 'till being long expos'd, it have attracted a freſh Supply to give it Life, and prepare it for Conception: For otherwiſe, all moderate Burnings, yea, and even ſometimes (to Appearance) immoderate (as that of *Roſe-trees*, *Reeds*, and ſome other, which makes them bear, and come the better,) is excellent Manure, as we ſee it in Straw and Stubble, enrich'd as they are with *Salts*; and if the very *Earth* be roaſted with the Fire, it ſolves Obſtructions, laxes the Pores, renders them attractive of the Influences, and to cheriſh with its Warmth; and the more ſimple and unmix'd the *Aſhes* be, in relation to what the Ground produces, it is the better: For as *Weeds* bring *Weeds*, ſo the *Aſhes* of *Fruits* and *Berries* (being burnt) diſpoſe to bring forth the ſame; nay, *Honorat. Faber* affirms, that *Wheat* burnt to *Aſhes*, produces *Wheat*; ſo as no Treatment of the *Seminal Rudiments* whatſoever, ſeems totally of Power to annihilate their Virtue; ſo ſtrict is the Union of the Parts from whence their *Forms* reſult. The *Calcination* then of *Earth* alone, not only diſpoſes it to produce great Variety, but if it be intenſe, increaſes the very Weight of the Mould; whether from a certain *Magnetiſm* which it thereby contracts, (which fortifies it to draw the proper Aliment more powerfully) or upon what other Account, let the Curious examine. In the mean Time, whilſt we are on this of *burning* the Earth, and that many think the *fixed Salts* to be the ſame in all *Vegetables*, (and their great Virtue included in this *Volatile*, totally loſt by *Calcination*) the *Powder* of Plants is by ſome preferable to the *Aſhes*: Which Husbandry, (after the *Romans* had long ſince uſed, even in *Britain*, for near Five Hundred Years, but diſcontinued by their Expulſion, and Depopulation) was reviv'd again in *Flanders*, and thence brought into *Devonſhire*, and about Sixty Years after cultivated more generally, with great Succeſs at firſt, (eſpecially on *Chalky* and barren Grounds) but ſenſibly diminiſhing, occaſion'd the *Proverb*, That *what is good for the Father*, is *ſometimes naught for the Son*; however it is found reſtor'd again to Fertility, by feeding *Sheep* on the Ground, above all other Dreſſings.

Lime is excellent for cold, wet Grounds, (and ſtiff *Clays*) a little ſleck'd, as over-*burning* the Drier, and the very beſt Deſtroyer of *Moſs*, and *Ruſhes*; as *Quick-lime* does *Furzes*, being firſt extirpated: Two Loads of *Turf* will make a Load of *Aſhes*, and ſo for greater Quantity, ſpread on ſteril Lands, ſpontaneouſly producing the *Cinq-foil*.

I come

I come next to *Marl*, (amongſt other Parts of *Agriculture* introduc'd by the ſame *Romans*) of excellent Uſe to fix light *Sand*, and dry Grounds; ſome are for the *White* and *Gray*, others the *Blue* and *Red*, (which I think the beſt) according as 'tis more or leſs apt to reſolve after wetting; but neither of them diſcovering their Virtue for the firſt Year: It does incomparably on *Paſtures*; ſome on *Arable*, a good Coat of *Compoſt*, ſuitable to the Land, being firſt ſpread where you will lay it: If your *Marl* be very unctuous and rich, apply it leſs copiouſly; the too thick Covering is the worſt Extream; nor is it always to be us'd without Allay and Mixture with other proper Soil; for ſome *Marl* is more *ſandy* and gritty than other, and ſhould be qualified with a Contrary: Give lean and emaciated *Earth*, a Covering of the fatteſt *Marl*; hot and dry, to the cold and moiſt: And this is alſo to be obſerv'd in the Applications of all other *Compoſts* and *Medications*.

Marſh and churliſh *Earth* will be civiliz'd by the Rigor and Diſcipline of two Winters; *Bis Frigora*, is the old Method to make the ſtubborn Clod relent; and with the Mixture of a little *Sand*, if it be too cloſe of Body, it will become excellent Mould.

Clay is of all other a curſt Stepdame to almoſt all Vegetation, as having few or no *Meatus*'s for the percolation of the alimental Showers, or expanſion of the Roots; whether it be the Voracious, Hungry, Weeping or Cold Sort: In theſe Caſes, *Laxatives* are to be preſcrib'd, ſuch as drift *Sand*, ſmall *gritty Gravel*, *Saw-duſt*, with *Marl*, or *Chalk*, and continually vexing it with the Spade or Plough; but above all, with *Sea Sand*, where it may be procur'd, and the burning of the Ground to *Aſhes*, and all that it bears, the more the better; for by no leſs Severity will this ill-natur'd Mould be ſubdu'd: *Rotten-wood*, and the bottom of Bavine-ſtacks, is a good Ingredient to this Manure; and if it be a cold and wet Sort, Strewings of *Soot* are good; if very ſtiff, Rubbiſh of *Brick*, *Limeſtone*, and ſuch Traſh, may properly be laid at the bottom, and on the upper part *Compoſts* of *Dung*; for otherwiſe no *Limings* (which being *Sleck'd*, is raw and cold) may at any Hand be applied, eſpecially to the hungry Sort, which (as alſo moſt kinds of *Marſh-Earth*) is ſubject to *Chaſm*, and gape in dry Seaſons; to prevent which, a diſcreet Mixture of *Aſhes* and *Sand* is us'd; for if it be in Exceſs, it over-heats the latter.

I do not reckon *Loams* among the *Clays*, though it ſeem to be but a ſucculent kind of *Argilla*, imparting a natural Ligament to the Earth where you mix it, eſpecially the more Friable; and is therefore, of all other, the moſt excellent Mean between Extreams, faſtening and uniting that which is too looſe or ſtony, cooling that which is hot, and gently entertaining the Moiſture. The *Flower-Garden* cannot be without a Mixture of it, nor well any *Fruit*, eſpecially the beſt *Cider-Apples*, ſo it be accompanied with a lighter Soil.

To ſum up all we have ſaid concerning Natural Improvements, by Mixtures of *Earth* with *Earth*, rather than *Dungs*; let us hear my Lord *Bacon*: He reckons up *Marl*, *Chalk*, *Sea-ſand*, Mould upon Mould, *Pond-earth* with *Chalk*, and the ſeveral Blendings and Tempering of them; among all which, *Marl* we find to carry the Preeminence with his Lordſhip, as the moſt pinguid, rich, and leaſt over-heating; next to this, *Sand*, as the moſt abounding in Salt; *Chalk* more heating, and therefore proper for *Clay*; cold

and ſpewing Grounds, being ſuffer'd to lie a competent time to reſolve before you turn it in; *Earth* on *Earth*, that is (I ſuppoſe he means) the underpart upon the upper, or the ſecond *ſpit* on the firſt, as we have all along directed at the breaking of freſh Ground with the Spade.

Another mixture he commends (and which we have likewiſe newly touched) of Subſtances, which are not meer *Earth*, as *Soot*, *Aſhes*, nor the hard and dry *Cinders* of *Sea-coal* (which we are too buſy with about this Town, where the Ground is naturally too hot and dry) but ſuch as is apt to relent, and even the ſprinkling of *Salt*, where it is *wiſely* ſown.

A *third* is, the permitting Vegetables, abounding in *fixed Salts*, to die into the Ground, *Peaſe haulm*, *Bracks*, all ſorts of *Stubble* caſt on about the beginning of *Winter*: So *Leaves* of Trees mingled with *Chalk*, and proper *Compoſts* of *Dungs*, to heat and preſerve the Ground from ſowring with them, when they are us'd alone.

A *fourth* is (what we have alſo touch'd) Heat and Comfort, procur'd by *Calcinations*, the burning of *Ling*, *Heath*, *Sedge*; covering the Ground with Buſhes for a time; Encloſures of Walls and Mounds, when the Land lies in the eye of the Weather, and in other Caſes, *Meridian* Expoſures, and the Warmth of the woolly Fleeces of *Sheep* as well as manure, folded or paſtur'd: And to this we may add, the very *grazing* of *Cattle*, which in ſome caſes has ſucceeded better than the beſt dungy *Compoſt*, eſpecially for old, and decay'd *Orchards*, which have been obſerv'd to recover to admiration, when mowing has been pernicious; for even the biting of *Cattle*, gives a gentle looſening to the Roots of the Herbage, and makes it to grow fine and ſweet, and their very Breath and Treading, as well as Soil, and the comfort of their warm Bodies is wholſome, and marvellouſly cheriſhing: But this is to be underſtood of places where the Stems are of full growth, and where the Beaſt cannot reach to crop.

Laſtly, *Irrigation*, and watering, both by admitting and excluding Moiſture at pleaſure: And certainly, this has (ſince his *Lordſhip's* time) been found one of the richeſt Improvements that ever was put in practice; eſpecially, where they have the command of fat and impregnate *Waters*, without Grittineſs, or being over-harſh and cold; whether it percolate through rich Ground, or, which is better, deſcending from Eminences, and moderate Declivities, from whence we find the Vallies ſo luxurious and flouriſhing.

To this belongs the cure of wet and *boggy Lands*, by cutting Trenches deeper than the Cauſe of the Evil, which proceeds from ſome conceal'd Springs hinder'd from emerging forth by the ſluggiſh incumbent Earth: This makes the Ground to heave and ſwell, but not giving vent, to ſtagnate and corrupt both the Water and the Mould about it: And though it lie looſe and hollow, yet it gathers no Vigor from above, but remains cold and inſipid. * The remedy is, opening the Ground till you meet with a ſound bottom, and cutting your Furrow upwards to the Bog, about a Foot beneath the ſpewing water: This is to be done in ſeveral places, and when the Drains appear to have wrought the effect, you may fill them up again with *Spray* and Bavine, great and rough *Flints*, *Brick-bats*, *Tileſhards*, *Horſe Bones*, the *Sculls* of the *Slaughter-houſe*, or any other Rubbiſh, which will remain looſe and hollow, and cover them with the graſſy ſide of Turf which you pared off, and laid apart; on *that*, throw your other Mould, which being caſt up in

* *See Mr.* King's *excellent Diſcourſe concerning the cure of Bogs and Loughs*, &c. Phil. Tranſact. Vol. XIV. N. 170. P. 947, *&ſeq.*

heaps for ſome time, will be much improv'd with ſpreading; laſtly, ſow it over with *Hay Seeds*.

But the Cure is yet eaſier, if the Land lie conſiderably ſloping; and if it happen to be a planted Ground, then cut your Trench deeper than the Roots of your Trees, and apply the foreſaid Rubbiſh to intercept the Moiſture. About the latter end of *October*, trench the Ground all over, for near a foot and a half in depth, and when you are come within three or four foot of the Stem, cut off all their larger Roots, ſloping inwards, ſparing only the *Fibres*, and ſuch of them as you find tender, and about as big as your Finger; leaving alſo the more perpendicular to keep the Tree ſteady: This done, caſt in ſome Rubbiſh of *Brick-bats*, *Lime-ſtone* (not *Chalk*) and other materials, that the Mould may lie eaſy about them, and with a mixture of good *Earth*, plenty of rotten Stubble, or other Soil, apply it near the Root, and fill your Trench with the reſt; and if your Ground require it, (as being too cold it commonly does) add to your Compoſt the *Dung* of *Sheep*, *Pigeons* or *Poultry* very well conſum'd: And becauſe *Moſs* is oftener cauſed by ſtarving and wet Grounds, than by hot and over-dry, (for both produce it) the Cure is likewiſe to be effected by *Ablaqueation*, and *baring* the *Roots*, as above; and for the latter, by a mixture of *Loam*, with the ſcouring of *Pond* or *Ditch Earth*, which of it ſelf is the moſt excellent manure; and the planting your Trees at greater intervals, for admiſſion of *Air* and *Sun*; ſince the ſcraping of it off (which may alſo be done in wet Weather) is but temporary, and if nothing elſe be perform'd, it will be ſure to grow again. And here upon obſervation, how Men *carbonate* and cut ſo many Rills, and narrow Trenches irregularly croſſing one another, to drain their Meadows and lower Grounds, (which take not up a little part of the Turf) I ſhould rather recommend the cutting of ſo large a Trench through the whole length of the *Pan* and bottom of the Ground, and of competent depth, to receive and drain the weeping Springs, inſtead of thoſe frequent Slaſhes and Gutters I have mention'd; ſince beſides the Beauty of the *Canal*, the profit of the *Fiſh*, &c. the Earth and Mud caſt out on both ſides, and ſpread upon the depreſſed and lower parts of the Ground, will not only raiſe the unprofitable Marſh, but thereby improve it for Paſture. One needs go no farther to ſee the effects of this Husbandry, than to St. *James*'s *Park*, where before the *Canal*, I remember all that pleaſant Valley, now yielding moſt rich Paſturage, (with the *Fiſh*, *Decoy*, and Walks planted with fragrant *Lime*) was nothing but a noiſom unwholſom Bog, and *Moraſs* of Moſs and Ruſhes. The uſe of the *Plough* is for this Work the moſt expeditious, and cheaper than the *Spade* alone, which after every Journey of the firſt, will be neceſſary to caſt and ſhovel out the looſen'd Earth on both ſides, to fill up the Hollows and Depreſſures of the Ground; and with the *Rake* to trim the Banks, and level the reſt as is requiſite: This undertaken in dry Summer-weather, the *Plough* ſtill ſucceeding the *Spade*, (till the *Channel* be of convenient depth) will of all other be the moſt effectual; and if near the *Manſion-Houſe*, a graceful addition to it. But to return to other Remedies.

Lands which are cold and dry, are (as we have hinted) to be improv'd by contraries; namely by application of *Compoſts*, which are hot and moiſt; as *Sheeps-dung*, burning and calcining of the *Earth*, with the *Vegetables* on it, and the like, to excite Heat and Fermentation; but which is not to be effected without repugnant Remedies, and ſuch as are of *heterogenous* Parts, to ſtir and lift up the Mould,

and render it leſs unactive. If it be cold and clinging, as frequently 'tis found, there *Lime-rubbiſh*, the ſmall harſher *Chalk*, *Sea-coal Aſhes*, a moderate ſprinkling of *Sand*, with ſome proper *Compoſt*, may perform the Cure.

Hungry Grounds require to have the Cauſe well look'd into; the *Water* turn'd (as above directed); or if it want, ſuch as is well enrich'd.

Lands that are hot and burning, allay with *Swines-dung*, as (ſay ſome) the coldeſt; or with *Neats*, which will certainly refreſh it.

For *Earth* which is too light, there's nothing better than *Pond-mud*, after a *Winter* has paſs'd upon it.

Earth over-rank (for there may be ſome too fat, as well as too lean) *Sand* and *Aſhes* will take down; but ſtill with regard to what you deſign to plant upon it: neither the *Almond*, nor the *Haſel*, will endure a wanton Mould; and though it ſeem a *Paradox*, that any Soil ſhould be too rich, (upon which ſome *Critics* have ſuſpected the Text in *Theophraſtus*, which aſſerts it twice in two ſucceſſive Chapters); 'tis yet a Truth indubitable, and holds as well in *Plants* as *Animals*, which growing very fat, are ſeldom prolific. Some on the contrary are ſo *emaciate* and lean, dry and inſipid, as hardly any Pains will make them fruitful. Such are *Mineral* and *Metallic* Soils, devouring *Clays*, light and *Aſhy Sands*; ſo again are putrid and *fungous*; others, though fruitful, producing only venomous Plants, *Hemlock*, and the deadly *Aconitum*; and ſome, though wholſome Ground, may be poiſon'd with unskilful or malicious Mixtures, and with Damps and *Arſenical* Vapours, which ſometimes (though *natural*) are yet but *accidental*, and for a ſeaſon; as when after extraordinary Droughts and ſtagnant *Air*, the *Earth* hath not been ſeaſonably open'd, refreſh'd, and ventilated. *Lib. 2. Cap. 5, 6.*

Moreover, Ground is ſometimes barren, and becomes unfruitful by the Vicinity of other *Plants*, ſucking and detracting the Juice of the *Earth* from one to another: For thus we ſee the *Reed* and *Fern* will not be made to dwell together; *Hemlock* and *Rue* are ſaid to be inimicous; the *Almond* and the *Palm*, which are ſeldom fruitful but in Conjugation; and perhaps there are *Effluvia*, or certain inconſpicuous *Steams* of duſty *Seeds*, which not only impregnate Places where never grew any before, but iſſue likewiſe from one to another, as in our *Junipers* and *Cypreſs* I obſerve, flowering about *April*; which are Trees of Conſort, and thrive not well alone. The *Ficus* never keeps her Fruit ſo well, as when planted with the *Caprific*. By what Irradiations the *Myrtle* thrives ſo with the *Fig*; the *Vine* affects the *Elm* and *Olive* (which is at Antipathy with the *Oak*, and imparts alſo ſuch a Bitterneſs to the Mould, as kills *Lettuce*, and other ſubnaſcent *Plants*) is hard to ſay; and why ſome affect to live in Crouds, others in Solitude: But that *Firrs*, *Pine*, *Cedars*, *Elms*, and divers other Trees, aſpire and grow ſo tall in Society, may be (as from other Cauſes) ſo from their not overglutting themſelves with Nouriſhment (for *Compoſt* is not their Delight) which inclines them rather to ſhoot upwards, than expand and ſpread.

Laſtly, By *Shade* Ground is render'd barren, and by the dripping of umbragious Trees. To theſe *Air* and *Sun* may be ſoon reſtor'd, by removing of the Skreens which intercept them; and yet all Shade is not unpropitious, where the Soil and Climate are benign, as well as that which caſts the Umbrage: and of this we have a notable Inſtance ſomewhere amongſt the *Aſtomori* even in *Africa*, where the Soil and

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the Air are reported to be ſo genial, that the *Olive* is ſaid to grow under the *Date-tree*, the *Fig* under the *Olive*, under the *Fig-tree* the *Granade*, under that the *Vine*, under the *Vine* a Crop of *Corn*, and at the feet of the *Corn* a certain *Pulſe*; none of them impeded by the more than reduplicated Shades. But there are ſome, we muſt confeſs, amongſt us, which are not ſo propitious; Trees of all ſorts (tho' the *perennial Greens* leaſt) breathe as much after the Air as the Soil, and do not thrive without it, nor except it be wholſome.

But to return to barren *Earths*, which are either out of heart by being ſpent, or from the Nature of the Soil (in both which, the *Plants* which they produce, though never ſo unproſperous, run haſtily to *ſeed*, or make an Offer) they are to be reſtored by the Plough, the Spade, and the Rake, by Stirring and Repoſe, Appoſitions and Mixtures of Earth, *Calcinations* and *Compoſts*; and above all, by the *Eye of the Maſter, and Duſt of his Feet*, as the *Italian* Proverb has it. For after this Proceſs, and innumerable other Trials, (mixtures of things being endleſs) all other ſorts of *Earths* and imperfect Moulds may be treated and meliorated; namely, if it be too *hard* and cloſe, to *mollify* and relax it; if too *looſe*, to give it *ligature* and binding; if too *light*, Ballaſt; if too *meagre*, to faſten and *impinguate* it; if too *rich* and luxurious, *emaciate* and bring it down; if too *moiſt*, apply *Exſiccatives*; if too *cold*, fermenting *Compoſts*; if exceſſive *hot*, to *cool* and refreſh it: for thus (as we ſaid) *Earths* ſhould be *married* together like *Male* and *Female*, as if they had *Sexes*; for being of ſo many ſeveral Complexions, they ſhould be well conſider'd and match'd accordingly, things (as was ſaid) becoming *fruitful* from the Mixture of *repugnant Qualities*; ſo as *Cold* and *Drineſs* without a *warm* and cheriſhing *Moiſture* produces nothing: for this therefore you ſee what Choice I have preſented you of *Sand*, *Aſhes*, *Chalk*, *Lime*, *Marl*, Mixture of Mould, *Calcinations*, *Air*, *Sun*, *Dew*, *Rain*, *Froſts* and *Snows*, *Trenching*, *Drilling*, *Watering*, *Infuſions*; and finally, of *Animal Stercorations*, and other *Compoſts*, which is the next and laſt Part of this (I fear) over-tedious Diſcourſe; ſince indeed it is not ſufficient to find out even the beſt, and moſt grateful Mould in Nature, ſo as to rely for ever upon the ſame Performance without Supplies of all ſorts; *ſtirring* and *repoſe*, conſtant *dreſſing*, and (after all we have ſaid) artificial *Lætations* likewiſe, to encourage and maintain it in Vigor.

We proceed then in the next place, to what farther Advancement we may expect from *Stercoration*, and manuring the Ground by *Compoſts*, and to diſcover the *Qualities* which may be latent in their ſeveral *Ferments*, and how to apply them by a skilful and *philoſophical* Hand, without which they do always more hurt than good; and therefore, firſt, we will enumerate their ſeveral kinds, and next enquire, what it is we chiefly ſeek for, and expect from them; and laſtly, how to treat them ſo as to render them fitting for our Service.

From *Animals* we have the Soil of *Horſes*, and Beaſts of Burden, *Neats*, *Sheep*, *Goats*, *Hogs*, *Pigeons*, *Poultry*, and *Fenny-fowl*: We have alſo *Fleſh*, *Fat*, *Blood*, *Hair*, *Feathers*, *Urine*, *Shavings* of *Horn*, *Hoofs*, *Leather*, *Skins*, *Fiſh*, *Garbage*, *Snail-mud*, &c. From *Vegetables* (as of neareſt affinity) we have *Vine-cuttings*, *Stalks*, *fallen Leaves*, *Marc* of the *Wine* and *Cider-preſſes*, *Lees* of *Wine*, *Oil*, *Rotten-fruit*, *Gourds*, *Weeds*, *Fern*, *Haulm*, *Stubble*, *Rotten Wood*, *Saw-duſt*; Refuſe of the *Tan-pit*, *Sea-woad*, *Linnen Clouts* and *old Rags*;

Rags; alſo *Brine*, *Pickle*, *Aſhes*, *Soot*; and of things promiſcuous, *Waſhing of Diſhes*, *Bucks*, *Barrels*, *Soap-ſuds*, *Slime*, and *Scouring* of *Ponds* and *Highways*, *Duſt*, *Sweepings*; in ſum, whatſoever is apt to rot and conſume in any competent time, and is either *ſalt*, *unctuous*, or *fatty*: To which let me add, impregnating *Rains* and *Dews*, *cold* and *dry Winters*, with ſtore of *Snow*, which I reckon equal to the richeſt Manures, impregnated as they are with *Celeſtial Nitre*. But with all theſe Auxiliaries we are not yet to imagine, that any of them are therefore profitable and good, becauſe they retain an heady *Scent*, are *hot*, *moiſt*, *rotten* and *ſlippery*, *fat* or *unctuous*, and the like; which are all Qualities, that *alone* and of *themſelves* effect little, till they are corrected and prepar'd; but, for that amongſt theſe Materials we detect the Cauſes of Fertility more eminently than in other Subſtances; partly from their *fixed Salts*, or ſome Virtue contained in them, or rather drawn from without, and imparted to the exhauſted and defective Earth; and that by ſuch a *Proceſs*, as by converting them into a *Chyle* (as it were) it facilitates their being *inſum'd*, *aſſimilated*, and made apt to paſs into Nouriſhment, promoting *Vegetation*. This obtain'd, the next thing is, how skilfully to apply what we have prepar'd: and this indeed is a Difficulty worthy the *Heads* as well as *Hands* of the profoundeſt *Philoſopher*; ſince it requires a more than ſuperficial Knowledge and Penetration into *Cauſes*.

We know indeed, that the *Earth* is, without any artificial Auxiliaries, endu'd with a wonderful prolific Virtue; but this, for being poſſible to be loſt and decay, (at leaſt for a longer time than our Neceſſities can ſupport) and from ſome Grounds never to be expected without ſuch Helps, it may be worth our while a little to conſider, by what Expedients of *Digeſtion*, or other ways, the deſir'd Effect of perpetuating its Vigor might beſt be accompliſh'd.

That the Secret we enquire after, and which does moſt apparently ſeem to *evirtuate* towards this end, is ſome vegetable *Salt* or Matter, I ſuppoſe is generally agreed: For *Salt* it is which gives *Ligature*, *Weight*, and *Conſtitution* to things, and is the moſt manifeſt Subſtance in all artificial *Compoſts*.

'Tis the *Salts*, which entice Roots to affect the upper and ſaline Surface of the *Earth*, upon which the *nitrous* Rains and Dews deſcend; and the Cauſe that ſome *Plants*, the moſt racy, and charg'd with Juice of all other, (for ſuch is the *Vine*) thrive ſo well amongſt Rocks and Pumices, and in whatever beſt maintains this vital Pickle.

'Tis *Salt*, which makes all cover'd and long ſhaded *Earths* to abound in Fertility, and renders the Dung of *Pigeons*, *Poultry*, and other *ſalacious* Corn-fed *Birds*, ſo eminently effectual, before the Soil of *Horſes* and other Beaſts, in which it leſs abounds, as having leſs Virtue to attract it.

'Tis *Salt*, that gives ſuch Vigor to Places ſprinkled with *Urine*, *Soot*, *Aſhes*, &c. which have them not diluted; and to *Bones*, *Fleſh*, *Horn*, *Hair*, *Feathers*, *Blood*, and the reſt of thoſe *animal* Excrements: And whence thoſe *ſeminal Maſſes* ſhould proceed after *Calcination* of the *Earth*, when it comes to be expos'd again, is hard to divine; whence, I ſay, they ſhould derive their Life and Energy, without being deſtroy'd by ſo powerful an Agent as *Fire*, unleſs they lurk in ſome vegetant and indiſſoluble *Salts*, (*volatile*, *fixed*, or *nitrous Earth*) from whence they (*Phœnix* like) emerge, though I do not ſay

without any other *ſpecific* Rudiment: But 'tis ſtrange, what, as I remember, Dr. *Moriſon* affirms of the *Eryſimum* or *Irio*, ſo ſeldom ſeen to grow ſpontaneouſly in *England* before the late prodigious *Conflagration* of this *City*, when there appear'd more of it amongſt the Ruins, than was known to grow in all *Europe* beſides; it being a curious *Exotic*, to be found moſt about *Naples* in the time of *Fabius Colonna*, and but rarely elſewhere.

'Tis *Salt*, which *reſuſcitates* the dead and mortify'd *Earth*, when languiſhing, and ſpent by Indulgence to her verdant Offspring; her Vigor ſeems to be quite exhauſted, as appears by the Rains and Showers which gently melt into her Boſom what we apply to it, and for which Cauſe all our *Compoſts* are ſo ſtudiouſly made of Subſtances which moſt ingender or attract it.

'Tis *Salt*, which fertilizes and renders *Egypt* ſo luxuriouſly fruitful after the Inundations of *Nile*; and the *nitrous* Grounds of *Jamaica*, and other Places, which cauſe ſo ſtupendious a Growth of Plants and Trees.

'Tis the want of *Salt*, which *emaſculates* the Virtue of *Seeds* too long macerated in hungry Water, and renders *floated Wood* ſuch unprofitable *Fuel*, and to turn into ſuch inſipid *Aſhes*; and whatſoever it be ſome *Plants* may appear to affect, as to the external Differences of Appetite, ſome of them ſeeming to draw in more *Air*, ſome *Earth*, and others *Water* in extraordinary meaſure, according to the ſeveral Contextures of their Parts, or by whatever *Magnetiſms* and Attractives, it is ſtill to come at their *Salts*, which doubtleſs create that Inclination, compoſe the various *Saps* and *Juices* which they preſent us. Nay, what if I ſhould ſay, that all the ſeveral Parts of *Vegetables* were endow'd with their peculiar and diſtinct *Salts*, through different *Motions*, *Complications*, and *Percolations*? Or, that ſo many *Earths*, ſo many kinds of *Salts* digeſted and tranſported by their different *Vehicles* and Strainers; and thoſe alſo, though unlike in Quality, yet perfectly congruous to what they produce and nouriſh? But what this *Vehicle* or *Menſtruum* is, I contend not; 'tis evident, that *Salts* unite beſt with Water, *Vernal* and *Autumnal* Showers and Dews, as the moſt apt to convey their Inſinuations. You know who have dignify'd *Salt* with the Prerogative of being nam'd *Element-Earth*, the *Vigor* and *Cloſe* of all things; yea, the firſt and laſt of *Elementated* Bodies: What ſhall I ſay, *Quid Divinum!* the Original of all *Fecundity*; nor can I ſay leſs, ſince there was nor *Sacrifice*, nor *Diſcourſe* acceptable without it. And verily, upon ſerious Contemplation of the Premiſes, and the little Experience I have had of their Effects in this Work of *Vegetation*, as far as I am able to penetrate into Cauſes by them, I am not diſpleas'd at the magnificent *Epithets* which are given it. In the mean time, I know there be, who are ſo averſe to this Doctrine, as to prefer Water alone before it; nor contend I with them, ſo they allow the near Affinity and Friendſhip which is between them, as I have deduc'd it at the Entry of this Diſcourſe, where I deſcribe my *Autoptical* Obſervations of the ſeveral *Earths*: All that I pretend from hence, being only to excite us to make diligent Enquiry, what may more likely be the *Cauſe* of *Vegetation*, and whether *Salt* have not a *Dominion* almoſt *Monarchical* in this great Work of Nature, being ſo abſolute an Ingredient in all our *Dungs* and *Compoſts*, which I am next going to ſpeak of. I cannot in the mean time but wonder, how a thing ſo eminently ſacred, and fertile,

ſhould come to be the *Symbol* of *Malediction*, when, as the Cuſtom was, they us'd to ſow *Salt* in the Place of *Cities* they had *eras'd* and *curs'd*; there being in all Nature nothing ſo pregnant and fruitful; nnleſs it were to invite the *Plough* to go there, and that the Fertility of the Spot for *Corn* and *Grain* might divert them from rebuilding and covering it again with Houſes. Indeed to apply *Salt* in Exceſs, burns the *Earth* for a time, ſo as nothing will grow upon it; but when once the Rains have well diluted it, it ſprings up more wantonly than ever. This I daily find by ſifting common *Salt* upon the *Gravel-walks* of my *Garden*, and for which Cauſe I have left it off; and we find that the *Earth* itſelf over-*marl'd*, and too highly manur'd, is as unprofitable as if it were barren for the time, and that there is in all things a juſt Proportion to be obſerved.

But neither all this while do I pretend, much leſs determine, that the *Principle* I ſo much celebrate, is our common artificial *Salt*, compos'd of *Urine*, and the like, which of itſelf is ſo burning and deſtructive, till its *Acidity* be qualified by the *Air* and *Showers* from Heaven (which endows it with a natural *Magnetiſm* to receive their irradiant Virtues;) but a certain more *unctuous Spirit*, or *airy Nitre*, pregnant with a *vital Balm*, which is the thing we endeavour to find in the Materials of *Compoſts:* But whether it be *accidental* or *eſſential*, *corporeal* or more *ſpiritual*, *principal* or *organical*; or (to ſpeak with the *Chymiſts* and later *Atomiſts*) whether communicated by *Effluvia*, *Salts embryonate*, or *undigeſted* and not *ſpecificate*; from *Ferments*, *Spermatic Vapours*, *Influences Celeſtial*, or from Liquor only impregnated and concocted, I leave to thoſe who affect to wrap up *eaſy* Notions in *hard* and uncertain Terms, whilſt the thing would be of uſe to the *Philoſophical Husbandman*, were their Reduction into juſt *Claſſes*, for the better diſcriminating of the ſeveral *Compoſts*; as what there's of them moſt abounds in *Nitrous*, or *Urinous Parts*; or what of the Nature of our crude, common *Salts*, and *Kali's Mineral*, or other; and thereby be able to pronounce, *where*, and *how*, we may apply them with Safety and Succeſs: For ſome we know are plainly exitial and deadly to *Plants*, (ſuch as the *Mineral*) others properate too faſt; and ſome are ſluggiſh, and ſcarce advance them at all. It would therefore be conſider'd, whether any *Salts* did univerſally nouriſh all *Plants* alike; or rather partly, ſome *one* Plant, ſome *another*; for upon the clear Deciſion of this *Secret* depends all that is truly curious in this Affair; laying, as I do, for *Poſition*, that the Improvement of all the *Earths* and *Soils* I have ſpoken of, reſult from ſome *Salt* or *Spirit* (call it which you pleaſe) as from an indiſpenſible *Principle* in this of *Vegetation*, and perhaps the *firſt Rudiment of Life* in all things elſe: And till we ſhall arrive to this (by what I have obſerv'd in the diſcreet Uſe even of our common *Salt*, *Brine*, the Effects of *Urine*, and the like) I firmly believe, that were *Saltpetre* (I mean fictitious *Nitre*) to be obtain'd in Plenty, we ſhould need but little other *Compoſts* to meliorate our Ground; ſince whether that which ſo fertilizes it by any Mixture we can yet deviſe, effect it from any other Cauſe, is greatly to be doubted; nor do I think, but the Charge of extracting it (at leaſt ſufficient to impregnate *Water* in convenient Quantity) might be compaſs'd by the induſtrious *Farmer* without much Inconvenience, or the leaſt Difficulty, were he competently inſtructed in the Proceſs of *Calcination*, *Reſolution*, *Percolation*, *Evaporation*,

and

and *Separation*, put into honeſt *Engliſh*, and eaſily to be learned? Soon we ſhould then ſee, that this were not to be extracted altogether out of ſtinking *Dung*, and found in heady Traſh, (which yet is material) but rather in the well impregnated and natural Mould itſelf, charg'd with a more generous Spirit, or medicinal *Nitre* (in congreſs with a certain *Sulphur*) capable to warm and excite to Vegetation, beyond all we can promiſe from any mere artificial *Ferments*, much leſs our common Mixtures, and ways of *Stercoration*, which in time grow cold and languiſh, and are ſo quickly check'd.

And now after all this, I dare not ſay, that there is nothing more than this meer *Salt*, or ſpirituous *Nitre*, which concurs to thoſe deſir'd Effects, that promote Fertility, and ſet the Ferment on working: What *ignite Particles* beſide, and ſpecial *Compoſts* there may be of Conſanguinity and near Alliance to the reſpective *Vegetables*, (which we know to be of vaſt Difference one from another) we pretend not to determine; for ſome *Plants* are very brisk and quick, others inſulſe and flat; ſome are acid, others more *dulcorous* and ſweet; they are *ſalt*, *ſowre*, *luſcious*, *auſtere*, *hot*, *bitter*, *moiſt*, *dry*, *aſtringent*, and of ſtrangely different Qualities, not to ſpeak of their Effects, which it were hard to number. Therefore, that the ſame *Compoſt* or Remedy ſhould be promiſcuouſly univerſal, is the more unlikely, and would be well conſider'd: But admitting this to be ſalvable, and that we find by Experience, a well digeſted *Compoſt*, beneficial to almoſt all the vegetable Family; may it not in all Probability ſpring from its Participation of all thoſe varieties of *Ferments*, (in ſome at leaſt, though in different Proportion) which we have been ſpeaking of? As by which each ſingle *Species* draws and *aſſimulates* that only to its ſelf, which it finds moſt *amicous* and congruous to its Nature; and if ſo it be, then have we no more to do, than to learn how to prepare our *Ferments*, and apply them accordingly; namely, *acid* to *acids*, *ſweet* to *ſweets*, *benign* to *benign*, and ſo the contrary, as we would promote its natural Quality; and this perhaps either by reducing ſome Parts of them into *Compoſts*, as their *Leaves Stalks*, *Fruit*; or by ſome more refin'd Extraction of their *Salts*, convey'd in proper *Vehicles*. And for the better adminiſtring of this, the nicer *Textures* of *Vegetables* ſhould diligently be conſider'd; their ſeveral Veſſels, and *Organick* Parts; ſince every impregnate Liquor is not preſently fit for all alike; the Figuration of their *Labiola*, and curious Pores (which 'tis likely draw ſeveral Juices and Spirits) being very different; as the moſt ſagacious Dr. *Grew*, and learn'd *Malpighius* (both Ornaments of this illuſtrious *Society*) have *begun*, (I think I may ſay, well nigh *perfected*) the way to us, in thoſe elaborate *Anatomizations*, which the World will * ſhortly admire. I inſiſt the rather on this, becauſe we find ſome *Plants* to reject divers rich compounded Liquors, eſpecially ſuch as pretend to work Miracles in the *Protean* Changes of *Colours*, and other Qualities, from *Mineral*, or other Subſtances; and that the very *Rains* and *Dews* differ in ſeveral *Climes*: So as even from this Reaſon alone, to inſtance in no more, all *Plants* do not eaſily become *Denizons* in all Places:

* *Not publiſh'd when this was preſented, and firſt read to the Society.*

——— *Nec omnis fert omnia tellus.*

I might add to this the Niceneſs of their *Palates*, and Fondneſs to their own *Homes*, and to live ſome in *Conſort*, ſome in *Solitude*, ſome

ſome on *dry Banks*, ſome in watry *Puddles*, and ſome as it were in the very *Air*, and fiery Soils; nay, ſome which are found to deſtroy the vegetable Virtue where they grow; for ſuch are ſaid to be *Woad*, *Hemp*, the *Scythian Lamb*, &c. and if it be true and conſtant, that all our Imbibitions of *Salts* and *Compoſts* ſignify little to *Earth* pre-impregnated with a *Salt* or Virtue different from what the *Plant* does naturally delight in, ſome obſcure Footſteps of which every *Ploughman* ſeems to diſcover, which makes him change the Crop in ſome Places yearly: For the firſt, ſecond, or third Burden of the ſame Grain, eſpecially *Wheat*, will exhauſt that which is its proper Aliment, and then leave the reſt to more ignoble Grain, which will be found to thrive well enough, till at laſt ſeveral Succeſſions of different Seeds quite wear it out, and then it muſt repoſe, or be manur'd with *Compoſts* for freſh Life and Vigor. And to this we may add, how ſome *Plants* again require little Change, or help of Art; ſuch as moſt of the *perennial Greens*, and amongſt theſe, the moſt *reſinous* and oily, as the *Pine*, *Firr*, *Cedar*, &c. which thrive on barren Hills, and grow in rocky Crannies, without any Earth almoſt to cover and protect their Roots. Of this ſort I have a *Cedar*-Table, which was ſaw'd out of a *Spur* only of a monſtrous Tree growing in the *Barbadoes*, which held *ſix Foot* long, *five Foot* broad, and three Inches thick, form'd and wrought as it ſtands upon the Frame; and his *Royal Highneſs* had another of a much larger Dimenſion; namely, *eighteen* Foot in Length, and *nine* in Breadth, cut out of the Stem, which was of prodigious Growth, to be fed and nouriſh'd as it were between the barren Rocks. But to proceed; we find that moſt *eſculent* and *culinary* Roots do rather chuſe a rich, natural and light Mould, inclining to Sand, than what is forc'd, or overmuck'd; and how much they yield to Soil growing hard, ſhort and fibrous, and contract the Smell and Reliſh of the *Ferments*, apply'd to accelerate their Growth (for according to the *Italian* Proverb, *Ogni pianta ſerba della ſua radice*, every Plant has a ſmack of the Root) I have already mention'd; ſo as to confide in *Dungs*, as our vulgar *Gardiners* about this *City* do, is no Encouragement; and therefore ſome, not without good Reaſon, prefer the *Corn* and *Grain* which is reap'd from *Marl*, *Chalk*, *Lime*, and other more natural Manure, before what is produc'd from a Crop which grows on a *Dung-hill* in Compariſon; Experience alſo ſhewing, that the Cauſe of *Smuttineſs* many times proceeds from the Impurity and Rankneſs of the Dreſſing; and therefore we omit to enumerate amongſt our Soils, *Stercus humanum*, which howſoever preferr'd by ſome before all other, and mention'd by *Columella*, with that of *Fowl* and *Cattle*, does (unleſs exceedingly ventilated and air'd) perniciouſly contaminate the Odor of *Flowers*, and is ſo evident in the *Vine*, as nothing can reconcile it.

To give ſome Inſtances of the Natute of particular and ſimple *Compoſts*, (for ſo I take leave to uſe a *Soleciſm*, till they are blended together with the reſt, as we ſhall afterwards ſhew) whatever they be, they are by no Means fit for the *Earth*, and Uſe of the Husbandman, unleſs, beſides their Richneſs, they be perfectly well digeſted, made ſhort, ſweet, and almoſt reduc'd to a crumbling Mould; ſo order'd, as not only not to loſe any of their Virtue, but to improve it, and to excite, entertain, and communicate Heat and vegetative Spirits

to what you ſhall apply them: And that this is not done *per ſe*, that is, by immediate application, without prejudice (unleſs it be for the *Hot-bed*, which yet has an *Intermedium* of *Mould*) Experience tells us, eſpecially in the Soil of *Animals*, which is of all other the moſt active, as conſiſting of *heterogeneous* Parts and Repugnances, without which no Fermentation could be obtain'd. Now ſince many of theſe being freſhly made, are not only ſenſibly hot, but *mordacious* and burning, they are with caution to be us'd. That every kind of *Earth* (as well as the *Dung* of *Beaſts*, &c.) has its peculiar *Ferment*, and operates accordingly, either by attracting ſomething to it, or embaſing what approaches it, ſufficient has been ſaid; together with Directions how to mingle and attemper it, as beſt may qualify it for Culture. That we may do the like with the ſeveral ſorts of *Soil*, let us conſider what their Natures are, what their Correctives, and how to apply them.

Horſe-dung, the leaſt pinguid and fat of any, taken as it falls, being the moſt fiery, excites to ſudden *Fermentation* above any; wherefore, as we ſaid, 'tis then fit only for the *Hot-bed*, and when that Fervour's paſt, may be ſpread on Fields, where we would have a rank Graſs to ſpring; but is at no hand to be admitted into the *Garden*, or where you deſire good *Roots* ſhould grow, unleſs the Ground be very ſtiff, cold or wet, and then too it had need be well rotted, leſt, inſtead of curing it, it leave *couch*, and pernicious Weeds, worſe than the Diſeaſe; the *Seeds* of *Hay*, and other *Plants*, of which the *Horſes* eat, coming oftentimes entire from them: And ſuch *Vegetables* do commonly ſpring up from the *Soil* of *Cattle*, of which they chiefly eat; as long *Knot-graſs* from this Beaſt; ſhort, clean and ſweet Paſture from *Sheep* and *Cows*; the *Sonchus*, or Sow-thiſtle from the *Swine*: So as Ground muck'd with *Horſe-dung* is always the moſt infected of any, and if it be not perfectly conſum'd, it makes your *Roots* grow forked, fills them with *Worms*, and imparts to them an unpleaſing reliſh; but being laid on at the beginning of *Winter*, and turn'd in at *Spring*, it ſucceeds ſometimes with *Pulſe*.

The Soil of *Aſſes* is highly eſteem'd, for its being better digeſted by the long *maſtication* and chewing of that dull Animal; but ſince we have no quantity of it in this Country, it does the leſs concern us.

Neats Dung of all other is univerſally the moſt harmleſs, and the moſt uſeful; excellent to mingle with *ſandy* and hot Grounds, lean or dry, and being apply'd before *Winter*, renders it the moſt like *natural Earth*, and is therefore for the *Garden* and *Orchard* preferr'd to any other. To uſe it therefore with the moſt certain ſucceſs in ſuch thirſty Grounds, apply a plentiful Surface of it, ſo blended, as the Rain and Showers may waſh in the Virtue of it throughly; but this is beſt done by making the *Dung* the finer, and what if reduc'd to *Powder*, ſprinkl'd for the *Garden*, or otherwiſe working it in at a ſoaking wet (not ſtormy) Seaſon, and then leaving it alſo cover'd with it for ſome time, if the Rain deſcend in too great exceſs.

The next is *Sheeps Dung*, which is of a middle temper between that and *Pigeons*; profitable in cold Grounds, and to impregnate *Liquors*, of choice uſe in the *Garden*.

The Dung of *Swine* is eſteem'd the coldeſt and leaſt *acrimonious* (though ſome there be who contradict it) and therefore to be apply'd to *burning* Lands; but always ſo early *interr'd*, as never to appear above Ground,

Ground, where it is apt to produce *Weeds* in abundance, from the greedy devouring of what that *Animal* eats.

This, though not ſo proper for the *Garden*, (and the moſt ſtinking) is ſaid yet to *edulcorate* and ſweeten Fruit ſo ſenſibly, as to convert the bittereſt *Almond* into ſweet, and therefore recommended, above all others, for Experiments of *Change* and *Alteration*: Some qualify it with *Bran* or *Chaff* well conſum'd, greatly comfortable to Fruit-Trees, but eſpecially the *Hairs* and *Briſtles* buried about the Roots of Pear-Trees.

Pigeons Dung, and that of *Poultry* (eſpecially of *Aquatic* Fowls, which is too fiery) full of *volatile Salts*, is hot and burning, and therefore moſt applicable to the coldeſt Ground. There is nothing ſo effectual to revive the weak and languiſhing Roots of *Fruit-Trees* laid early to them; but firſt be ſure they paſs their *mordicant* and piercing Spirits, and be diſcreetly mixt: Be this therefore obſerv'd as a *conſtant Rule*, that the hotter *Compoſts* be *early* and *thinly* ſpread, *è contra*, the colder.

Very efficacious is this *Dung* to keep *Froſts* out of the *Earth*, and therefore of great uſe to cover the Mould in *Caſes* of *Exotic* and tender Plants; but if the Heat be not well qualified, the very *Steam* will kill them in a moment; therefore let a full *Winter* paſs over this *Lætation* for moſt uſes. The beſt way of preparing it, is to reduce it into *Powder*, and mingle it with the Mould, and to water with its *Infuſion*, which alone does wonders; or, if it have been well expos'd and abated, you may uſe it at the *Spring* without addition: But if you deſire ſomething that is exquiſite, macerate it well rotted in the *Lees* of *Wine*, ſtale *Urine*, and a little *Brimſtone* beaten very fine, to mingle with your *Earth*, for one of the richeſt *Compoſts*. Then is this only to be noted, that, as the effect of this *Dung* is ſudden, ſo it laſts not long, and therefore muſt the oftner be renewed.

The Fleſh of *Carrion*, and dead *Animals*, being (as I think my Lord *Bacon* tells us) prepar'd already by ſo many curious *Elaborations* of its *Juices*, is highly effectual; but it ſhould be very well conſum'd, and ventilated, till it have quite loſt its intolerable ſmell, and therefore never apply'd too crude.

Blood is excellent almoſt with any Soil where *Fruit* is planted, eſpecially the *Mural*; to improve the Blood of the *Grape* of great advantage, being ſomewhat *diluted*, and pour'd about the Roots. It has been aſſuredly reported by divers Eye-witneſſes, that after the *Battel* of *Badnam* Fields in *Devonſhire*, (where the late Lord *Hopton* obtain'd a ſignal Victory) the *Carnage* being great, and happening in that place; the *Blood* of the ſlain did ſo fertilize the Fields (where *Corn* had been ſown a little before) that the Year following produc'd ſo extraordinary a *Crop*, as moſt of the *Wheatſtalks* bare *two*, *three*, *four*, yea to *ſeven* and ſome even to *fourteen* Ears, a thing almoſt incredible. The Owner of the Land ſeeing his Ground ſo miſerably trodden by the *Horſe* and Soldiers after the Conflict, intended to reſow it, as believing all his former Labour loſt; but being diſſuaded from his purpoſe (perhaps to make the Experiment) it happen'd as you have heard.

Urine, for being highly ſpirituous and ſharp, had need be well corrected, and then, being mingl'd with other *Compoſts* to allay its acrimonious Salt, it hardly has its equal.

Hair, *Horn-ſhavings*, *Bones*, *Skins*, *Leather*, &c. are deeply to be buried, and ſo as not to touch, but lie about the Roots: Theſe, with *Rags*, coarſe *Wool* and *Pitch-Marks*, improve the Earth, as being full of volatile Salts, drawing and retaining the Dews. And *Fiſh* is likewiſe ſpread to great advantage of Grounds, where 'tis to be had in plenty; and for being quickly conſum'd, may ſooneſt be apply'd. We come to *Vegetables*.

The *Marc* and Preſſings of the *Grape* are good *Compoſt*, and ſo is the *Lees* of *Wine* mingled with the Mould: It is of ſingular comfort to the Roots of *Orange-Trees*, and *Caſe-Plants*; and if you ſift a little *Brick-duſt* with it, and bury it near the Roots of *Roſemary*, it will thrive wonderfully. It may be a laudable Campoſt for moiſt Grounds, where that Plant ſo unwillingly grows.

The *Leaves* of Trees are profitable for their own Fruit, and natural, being well rotted, and not muſty: The *Peach-leaf*, hurtful to Cattle, is excellent for the Tree from which it falls; and the *Walnut-leaf*, noxious to the Graſs, is helpful to the Tree.

Duck-weed, the ſlime and ſpongy *Ouze* of ſtagnant Waters, mixed with proper Mould, make a kind bed for *Aquatics*.

Saw-duſt, *Rotton-wood*, found in the hollow of decay'd Trees, under the *Stacks*, and where Trees grow thick together, as in great and old Woods, but eſpecially that which is taken out of an inveterate *Willow-Tree*, is preferable to any other for the raiſing of *Seedlings* of choice *Plants*, mix'd as it ſhould be with a little *Loam*, *Lime-rubbiſh* and *Mould*, as we have taught. This and the reſt ſhould be well ventilated, and is of great effect to looſen and mellow Ground, as tenacious of Moiſture.

Wood-aſhes, rich and impregnate with *Salts*, are fit for wet Ground without mixture, and in Paſture excellent, not ſifted on over thick. In the *Weſt-Indies* near *Guatimala*, *Gage* tells us their *Manure* is the burning of Trees to *Aſhes*, of which they do not ſpread above one *Buſhel* upon an *Acre*: It likewiſe kills the Worm; but in Earth which is ſubject to over-heat and *chap* much, *Aſhes* and burning *Compoſts* do but increaſe the Fever, and therefore contrary Remedies are to be ſought, ſuch as *Neats* and *Swines Dung*; but not ſo when Lands are naturally, or accidentally cold. Wherefore we ſhould endeavour by all means to detect, as far as we are able, the Quality predominant both of the *Earth* we would improve, and the *Compoſts* we apply, and not throw them on promiſcuouſly upon every thing without conſidering of what temper and conſtitution they be; for Grounds are as nice as our Bodies, and as obnoxious to Infirmities upon every defect and exceſs; and therefore it requires Skill, and no little Study, to be able rightly to *marſhal* this *Materia Medica* (as I may call it) of *Compoſts*, the virtue of which does ſometimes lie very hidden; at leaſt, if that be true which Sir *Hugh Platt* affirms, that what we all this while ſeek after, is indeed altogether inviſible to human Eyes, and to be diſcern'd only by the Eyes *intellectual*, becauſe 'tis vail'd and clad under ſo many different Bodies, whereof ſome are more ponderous, ſuch as *Marl*, *Chalk*, the Dung of *Beaſts*, &c. ſome more light, as their *Fleſh*, *Bones*, *Hair*, &c. and ſome yet lighter, as *Grain*, and generous *Seeds*; for in ſuch as have Virtue to multiply their own *Species*, that Spirit is inveſted with a very thin and curious Integument, as in effect we have inſtanc'd in the *Blood* and *Fleſh* of *Animals*, ſo much more powerful for the enriching of Land than their

Dung and *Excrements*; this induſtrious Man computing it to no leſs than *twenty* times, and to the ſame advance above this, *Hair*, *Wool*, and *calcin'd Bones*, &c. and as to the courſer Soils, that the *Dung* of *Pigeons* and *Poultry* does as far exceed that of *Beaſts* which feed on groſs Vegetables; and tells us, it has been found upon experience, that one Load of any ſort of *Seed* contains as much Vertue as *ten* load of ordinary *Dung*; and therefore 'tis adviſable, that upon all removals of *Corn-ricks*, *Hay-ſtacks*, &c. the Husbandman reſerve all he can of the *Bottom*, *Offal* and *Shakings*, and to mingle it with *Chimney-ſoot* and *Blood*, and with that to reduce it into the conſiſtence of a *Paſte*: To this add as much dry'd *Neats-dung*, temper'd with *Urine*, and made up in Cakes as big as Houſhold Loves, and after all is well dry'd in the *Shade*, crumble them to Duſt, to be ſifted or *ſprinkled* on the Ground for a very conſiderable Improvement; we ſay *ſprinkled*, becauſe they ſhould never be too *thick*, eſpecially for *Corn*, which it either cloys, or over-heats, according as 'tis qualified: Thus, *Pigeons-Dung* burns *Seeds* on hot Ground, but is excellent for *Barley*, &c. ſown on the colder Mould.

Of like effect is *Earth* blended with *Malt-duſt*, or purified and decay'd *Corn* reduc'd to *Meal*; ſo is the Duſt of old *Furze-buſhes*, (in *Devonſhire* call'd *Dreſs*;) but this *laſt* ſhould not be taken in *Seed-time*, leſt it infect the Ground with a Plant not eaſily extirpable.

Laſtly, The *Mud* of *Ponds* and ſtagnant Waters of *Ditches*, ſhovel'd up, and well air'd, is beſt apply'd to *Roots* of Trees, but eſpecially the *Duſt* of unſtony *High-ways*, where the drift of *Cattle*, and much Paſſage is: Let it be carried off from *March* to *November*; for it being already a kind of refined Soil continually ſtirr'd and *ventilated*, there is no *Compoſt* preferable to it for any uſe: It is prepar'd in the higheſt degree, and will need no Wintering, but may be us'd immediately; and ſo may *Straw*, *Haulm*, and other *Litter* trampl'd on in dirty Streets, after it is a while rotted and mingl'd. Mr. *Ray* tells us, that in ſome Places about the *Alps*, he found them ſowing *Duſt* upon the *Snow*, as he ſuppoſes, for Manure, and to fertilize the diſſolution.

Thus with no little Induſtry are found out the ſeveral kinds of *Compoſts*, and Materials of Improvement, and what is the moſt genuine and true Medicament of every Soil for *Arable*, *Paſture*, or *Garden*. I do not ſay all, or as if there were no more; for what if indeed there ſhould be as many ſorts of *Compoſts*, as there are of *Ferments* or *Salts*; and as many ſorts of *Salts* as there be of *Vegetables*, or any other putrifiable matter? The more there be, the greater ought to be our Induſtry and Skill to be able to diſtinguiſh them, and to know how and when rightly to apply them.

Nor is it ſufficient to conſider the nature of the *Earth*, *Mould*, and ſeveral *Compoſts*, but of the very *Plants* themſelves, for the application of what you adminiſter, be it for Food or Medicine; as if they be cold of Conſtitution, to make uſe of the hotter *Compoſts*; if hot, to preſcribe the cold. For inſtance in a few of the moſt uſeful only:

Fruit-trees do generally thrive with the Soil of *Neats* and *Hogs*; moſt *Flowers* with that of *Sheep*, but eſpecially *Roots*. *Peter Hondius* tells us (in his Book intitl'd *Dapes inemtæ*) that by the ſole application of *Sheeps-dung*, he produc'd a *Reddiſh-root* in his *Garden* as big as half a Man's middle, which being hung up for ſome time in a Butcher's Shop, People took for an *Hog*.

Apples affect a pretty rich Soil, with a daſh of *Loam*, but they will bear even in *Clay* well ſoil'd, and mix'd with *Chalk*, eſpecially the more hardy Winter Fruit; and in *Chalk* alone for ſome Years; but they produce, though ſweet, not ſo large Fruit: But both *Apples* and *Pears* have a better reliſh in Grounds that are not over-moiſt, and where they may ſtand warm, and the laſt will proſper well enough where the Soil is mixt with *Gravel*, and has an harder bottom.

Cherries, Summer and Stone-Fruit, ſuch as have their Roots like Thrums, deſire a fine light Mould, *Sand* or *Gravel*, with *Chalk* and good *Compoſt*, unleſs it be very courſe and ſtony, in which caſe it would be well ſoil'd, and the Pit you plant in, fill'd with rich Mould, as far as the Roots likely uſe to extend before they reach the *Gravel*, ſo as to make good ſpread; and this is to be renew'd every third or fourth Year; and for this reaſon it is profitable ſometimes to *bait* ſteril Grounds, by laying your *Compoſts* at reaſonable intervals, thereby to tempt and allure the Roots towards it, and keep them from wandring, which they will be ſubject to do in ſearch of freſh nouriſhment: For to bear conſtantly well, and much, *Fruit-trees* muſt have frequent *Lætations*. Nor are we to judge, that what is excellent Ground for one ſort, is ſo for another; ſince that which is perfectly good for *Corn*, is not ſo for all *Fruit-trees*; and a ſlender Straw will be fed and brought up with a great deal leſs ſubſtance and virtue, than what will ſerve to furniſh the Stem, Bulk aud Head of a fertile and ſpreading Tree.

Vines, (than which there is no Plant more ſenſibly retains the different qualities of *Earth*, or whoſe Juice is of more variety) rejoices in light, but vigorous Mould, rather *ſandiſh*, and inclining to dry, than either fat, luxurious or moiſt. *Lime* temper'd with *Blood*, exceedingly recreates it, after the firſt accidental Heats are paſs'd over.

The *Fig-tree*, (though affected to dry Grounds) is no lover of *Stercoration*, yet in ſome Countries they apply *Oyl-Olive* and *Doves-dung* to cauſe them to bear early Fruit; but omitting the *Oil*, if the *Dung* be mingl'd with *Lime* and *Aſhes*, it is not to be reprov'd: This *Fruit* thrives, and ripens even in the Shade, and *Northern* Expoſures, with us in the *Meridional* Parts of *England*; but much better in the *South*, and beſt of all in *Caſes*, and under *Shelter* in *Winter*; an Induſtry worth the Pains, for the moſt delicious Fruit in Nature, were it skilfully cultivated.

Artichokes thrive exceedingly with *Sheeps-dung*, which apply'd to the Roots, make them produce very great Heads: In the Iſland of *Jerſey* they uſe *Sea-wreck*, to a wonderful improvement of that Plant.

Melons, *Aſparagus*, and moſt haſty Growers, participate evidently of the Soil; and therefore we have already ſhew'd, how new and heady Dung contaminates; and this is amongſt other the reaſon why in the more Southern Countries (where they are planted in the natural and unforc'd Mould) they are ſo racy and ſuperior in Taſte and Flavour to ours. I ſhould therefore recommend the uſe of *Sheeps-dung*, well reduc'd or rather the Aſhes of burnt *Straw*, and the hotter Dungs *calcin'd*, for ſome tryals to reform it; or, as they do in *Italy*, mingle *Duſt* and *Earth* manur'd with *Sheeps-ſoil* and *Wood-aſhes*; if after all we have ſaid, the cauſe of our application of *Compoſts* and *Dungs* to theſe rarer and choice Productions, be not to prevent the *Rains* only; for other-

wiſe too rich Soils impair the moſt delicious Fruits, rather than improve them; and *Grapes* and other Fruits are ſooner ripened which ſtand near the Highways, much beaten by Paſſengers, than by all that you can lay to the Roots, or ſpread on the Ground for that Purpoſe, the *Duſt* inveſting both the Tree and Fruit with a kind of refin'd Soil, mellow'd with the Dews and gentle Showers which fall from Heaven.

To give ſome Inſtances; *Roots*, as we have ſhew'd, deſire deep Ground; *Fruit-trees* not ſo, which ſhould never go deeper than the uſual Penetrations of the Sun; for no farther is the Mould benign: Beſides, that they but too propenſely ſink of themſelves, eſpecially *Bulbs* of *Flowers*, whoſe Fibres eaſily draw them down, and then they change their artificial and accidental Beauty, and (as we call it) degenerate; but *Trees* will grow and thrive, if planted on the very Surface, with little covering of the Mould, ſo it be oft refreſh'd and eſtabliſh'd againſt the Wind. Beſides we find, that even the goodlieſt Fruit (as well as ſome *Timber-Trees*) have many times the hardeſt Footings with reaſonable depth of Earth: So little does it import to have it profound; and therefore in ſoft and deeper *Sands*, they thrive nothing ſo well, as on *Chalk* and *Gravel*, ſo long as the Root can be kept from deſcending; in which Caſe you ſhould (as we have ſhew'd) *bait* the Ground towards the Surface, and keep the Roots from gadding too far from the Stem; for the lower Roots are frequently ſtarv'd by the upper, which devour the Nouriſhment before it arrive at them: Thus *Gardeners* ſhould ſometimes humour their *Plants*, cook and dreſs their *Foods* to their Appetite, and as they can well digeſt it: But by no means ſuffer the *Roots* of *Fruit-trees*, *Standards* or *Mural*, to be planted in *dunged Earth*, which is not exceedingly well digeſted, and little different from the natural Soil.

To give ſome other profitable Inſtances of this Nature; in *tranſplanting Trees* (beginning early, and when the *Earth* is moſt tractable) endeavour to make your Mould as *connatural* to that of the Place or Nurſery from whence you remove them, as you can. 'Tis not therefore material it ſhould be ſo much richer; but where *Imp-Gardens* are poor, the tender *Plant* (like a *Child* ſtarv'd at *Nurſe*) does ſeldom thrive wherever you ſet them; and therefore you ſhould have fair and ſpreading Roots, and be well fed, whatever ſome pretend: For other rarer Shrubs and Plants, the *Orange* (*Herrera* tells us) thrives well with the *Aſhes* of burnt *Gourds* and Leaves, and needs not Change of Mould, even in the *Caſe*, above twice a Year, and that towards the Surface; but *Amomum Plinii* is a ſtrange waſter of *Earth*, and ſhould continually be enrich'd and planted as it were all in *Dung*; ſo the *Myrtil* and *Pomegranat*; whilſt the *Red Roſe*, *Capers*, *Sampier*, and other Shrubs and Plants thrive better in *Gravel* and Rubbiſh; *Sage* with Aſhes; and ſo *Porſelan* with Duſt and Sweepings: *Rue* affects the dry Mould, *Lettice* the moiſter; *Flowers* for the moſt part deteſt the *Dunghil*, but if any, that of *Sheep* or *Neat* mix'd with *Loam* and light *Earth*: *Tulips* delight in Change, and rather in poor than rich Mould; yea, ſharp and hungry, to preſerve their *Variegations*: But becauſe 'tis ſometimes troubleſome to tranſplant them yearly, place a Layer of ſhort *Stable Litter* a Foot beneath your Mould, and you will find they may remain unremov'd for ſome Years without Prejudice. The *Iris* loves the dry Beds; *Crocus*, a mix'd, rich

rich and light Soil: *Carnations* would have a *Loamy* Earth, qualified, if too ſtiff, with *Sea-ſand*, and *Sheeps-dung*; if too poor, with richer Mould; ſo the *Peony*, *Anemony*, *Ranunculus*, and other Flowers; but then lay it at the bottom, ſuch as you take from the laſt Years *Hot-bed*, giving it a Surface of *Under-turf*, which has been ſoder'd on, ſweet and air'd: In this to plant your Roots, but ſo as not to touch the *artificial* Soil, but rather let it lie about the *Paſture-Earth*, in which your *Bulbs* ſhould always be planted: For all *dung'd* Earths canker the Roots of *Flowers*, whilſt their Fibres, reaching the heartier Mould, draw from it without Danger. But if you would indeed be provided of excellent Earth to plant moſt *Flowers* in, lay *Turf* of *Paſture-ground* in Heaps for two *Winters*, till it be perfectly conſum'd: This is alſo admirable for *Tuberous* Roots, and indeed all upland Mould, whether *ſandy* or *loamy*, may be made perfectly good with *Neats-dung* laid on the Surface about *Michaelmas* for one Year, that it may waſh kindly in; then in *September* after, pare this Turf off as thin as you can, and for the firſt Foot depth of *Earth*, you have Bedding for *Bulbs* and *Tuberous* Roots ſuperior to any other. Another proper Mixture (much in Eſteem with our *Gardiners*) is hollow *Willow Earth*, a fourth Part, ſifted from the groſſer Sticks, with almoſt an equal Portion of *Sheeps-dung* (*Lauremberg* ſays *Goats* is bether) with a little natural Mould; and indeed this is excellent to raiſe any *Seedlings* of *Flowers*; but for the more minute and delicate, ſuch as *Cypreſs*, *Mulberry*, the *Samera* of *Elm*, and the like, prepare a Mould almoſt of Powder, gently refreſh'd with a dewy *Sperge* or Bruſh, not with the Watering-pot, which plainly gluts it.

Auricula, *Anemonies*, &c. ſhould be raiſed in the *Willow-mould* deſcrib'd above, but planted forth where *Neats-dung* and *Loam* is ſifted among the Paſture Earth.

The *Pine* and bigger *Kernels* make (as ſome affirm) great Advance by being coated with Dung, which being grown to great Trees, abhor it. Touching Change of *Crop*, ſomething has been ſaid already, and *Peaſe* degenerate betimes, at leaſt in two or three Years, be the Land never ſo good; ſo 'tis obſerv'd, that moſt Plants long ſtanding in the ſame Bed, impair both the Ground and themſelves, eſpecially *Sorrel*.

To conclude; for a general good *Garden-ſoil*, take the natural *Under-turf*, if it be not too ſtiff; add to it a quarter Part of *Neat* or *Sheeps-dung* perfectly conſum'd: one Buſhel of *ſlack'd Lime* to each Load of Mould, with ſome ſweet, though rotten *Wood-pile* or *Willow-Earth*, mix it well together; and you have a choice Compoſition for all your rare *Exoticks*, *Oranges* and *Caſe-ſhrubs*; remembring to place the ſpray of rotten Bavins, Hampers or Baskets, to keep the Mould looſe, with *Lime-ſtone*, *Brickbats*, *Shells* and other Rubbiſh at the bottom, that the Water may paſs freely, and not rot the *Fibres:* And therefore be careful never to make your *Caſes* cloſe below, but rather ſo *bar'd*, as to be able to keep the courſe Materials from dropping through, whilſt Auger-holes, (though never ſo thick bor'd) are apt to be ſtopp'd up, and then your Roots do certainly rot, and your Trees grow ſick. The ſame is to be obſerv'd in *Pots*, and that you place them about an Inch from the Ground, that they may freely drain, and as freely receive refreſhing. But I muſt not quit theſe Cu-

rioſities, to ſpeak of the cooler Compoſts, till I have deſcrib'd the beſt *Hot-bed* that I know of.

Dig a Pit or *Foſſe*, *hot-bed* Depth, (four Foot is ſufficient) and of what Figure and Dimenſion you think will beſt entertain your Furniture for it; if it be twenty foot in Length, and ten foot broad, I think it competent: Line the Sides with a Wall of Brick and half thick; fill this Pit with freſh Soil from the Stable, trodden as other *Hot-beds* are, but without any Mould on the Surface. In *this* place half-inch *Wooden-caſes*, made like *Coffins*, (but not contracted at the Extremes, nor lidded) of what Length and Breadth you think beſt, but not above a Foot in Depth; let theſe be dovetail'd, with wooden Handles at each End, to lift in and out; and laſtly, bor'd full of Augreholes at the bottoms. Your *Caſes* thus fitted, fill them with proper Mould, ſuch as you would ſow *Melon-ſeeds* in, or any other rare Seed, and thus place them in your Bed of *Dung*. The Heat will paſs kindly through the Perforations, and continue a cheriſhing Warmth five times as long as by the common way of *Hot-bed*, and prevent you the Trouble of making new and freſh for the whole proceſs of the *Melon*, or what other of choicer Plants require more than one Removal. The Heat of this Bed continues eight or ten Weeks without need of repairing; and if it ſhould, 'tis but caſting in ſome freſh-made Soil and *Litter* beneath and about your *Caſes*, of which, ſome you may glaze *Cheveron-wiſe* at the top, and with *Spiracles* or *Caſements*, to refreſh and give them Air and Sun at pleaſure. And theſe *Beds*, where you cannot conveniently ſink them for want of Depth, becauſe of Water, you may build above-ground as well; and you may, or may not, extend a Tent over it, to protect it from Rain, Wind and Sun, according as you find Occaſion. But thus have you a neat and uſeful *Hot-bed*, as I have been taught to make it by the Right Honourable the late Lord Viſcount *Mordant*, at *Parſons-Green*, whoſe Induſtry and Knowledge in all *hortulan* Elegancies requires honourable Mention. *Note*, That ordinary freſh Mould, ſo it be not poor, and very lean, or apt to clog, is a better Surface for the *Hot-bed*, and to entertain and cheriſh the moſt curious *Seeds*, than what *Gardiners* univerſally make Uſe of, *ſticky* and *over-looſe*, at leaſt let a due Proportion of *natural Earth* be ſifted amongſt it.

And now at laſt I am come to ſet down the ſeveral ways of preparing *Compoſts* of *Dungs*, and thoſe other Ingredients we have mention'd, and begin with the rudeſt, as that which beſt accommodates to the groſſer Part of Husbandry, (which yet requires a ſpecial Maturation) and ſo deſcend to the more refin'd: And theſe I diſtinguiſh into the *moiſt*, the *dry*, and the *liquid* for *Irrigation*. But firſt, here by the way, greatly to be reproved is the heaping of a deal of indigeſted Soil, and other Traſh, expos'd (as commonly we find it) to the heat of the *Sun*, continual *Rains*, and drying *Winds*, as it lies in the wide Field, without the leaſt Coverture or Shade; by which Means all the Virtue is drawn forth and carried away, leaving little more than a dry and inſipid Congeſtion of *Caput Mortuum*, and perhaps a florid green Circle, or *Fairy Dance* at the bottom, which the impregnated Rains have enrich'd with what it has waſh'd from the Heap; wherefore to prevent this, and make one Load of our prepared Soil worth ten of it,

Cut a ſquare or oblong *Pit*, of thirty or forty foot in length, at the leaſt four foot in depth, and ten foot over, or of what Dimenſions or Figure you think will ſuffice to furniſh you with Store: Let one of the Sides or Edges be made ſo ſloping, as to receive a Cart or Wheelbarrow to load and unload eaſily; let the Bottom and Sides alſo be ſo well pav'd, or laid with a Bed of ſmall *Chalk*, *Clay*, or the like, that it may be capable of retaining Water like a Ciſtern: If to this you can commodiouſly direct any Channels or Gutters from your *Stable*, and other Sinks about the Houſe, it will be much the better. The *Pit* thus prepar'd, and under Covert (for that I ſhould have premis'd) ſo as at leaſt the downright Rains may not fall upon it (but when you pleaſe;) caſt into it, firſt, your *Stable-ſoil* with the *Litter*, a foot or more thick, according to the Depth of your *Pit*; upon this lay a Bed of *fine Mould*, on that another Bed of *Cyder-Marc*, *rotten Fruit*, and *Garden Offal*; on this a Couch of *Pigeons* and *Poultry-dung*, with more *Horſe-dung Litter*; then a *Stratum* of *Sheeps-dung*, a Layer of *Earth* again, then *Neats-dung*; laſtly, *Aſhes*, *Soot*, *Fern*, (a moiſt and a dry) bottom of *Wood-ſtack*, *Saw-duſt*, dry Scourings of *Ponds* and *Ditches*, with all other Ingredients, as you happen to amaſs them, till the *Ciſtern* be full and heaped up: upon all this caſt plentiful *Water* from time to time, which if you can have out of ſome Pond where Cattle uſe to drink and cool themſelves in, it will be excellent. At the Expiration of two Years you may confidently open your *Magazine*, and ſeparate the Layers as they riſe, to caſt them into other ſmall *Pits* or Receptacles made a little concave to receive them; where you may ſtir, air, mingle, and work them in with freſh Mould, or one with the other, as you find cauſe, till they become comparatively ſweet and agreeable to the Scent. Laſtly, you may paſs them through a *Screen* made of *Laths* placed at moderate Intervals, and with the Liquor remaining in your great *Ciſtern* ſprinkle the ſeveral *Compoſts*, and make them up for uſe, caſting the coarſe remaining Stuff, which would not paſs the *Riddle*, into the *Ciſtern* again for farther Mortification, and ſo keep your *Pit* fill'd with freſh Materials from time to time after the ſame Method: Others, in the mean time, lay their ſeveral *Ingredients* by themſelves in ſome ſhady Corner, which being frequently ſtirr'd, after two or three Years, mingle them together at diſcretion.

There are ſome who adviſe us to ſuffer our Mixture to remain till it be quite dry, after it is thus refin'd; and then being beaten to duſt, to ſtrew it upon the Ground. And indeed this ſeems in *Pliny*'s Time to have been the Cuſtom; nor do I contradict it, provided you could water it, or were ſure of a Shower before the *Sun* had drank too deeply of the Spirit and Vigor of it, which, reduc'd in this manner, it does eaſily part withal.

Now the Reaſon of our thus treating *Compoſts* of various Soils and Subſtances, is not only to dulcify, ſweeten, and free them from the noxious Qualities they otherwiſe retain, and conſequently impart, apply'd, as uſually we find them, crude, indigeſted, and unactive; but for being immoderately hot and burning, or elſe rank, and apter to ingender *Vermin*, *Weeds*, and *fungous* Excreſcences, than to produce wholſome *Plants*, *Fruits*, and *Roots* fit for the Table, and grateful to the Palate; for which Effect, it ſhould be throughly concocted, air'd, of a Scent agreeable, and reduc'd to the next Diſpoſition of a ſweet and natural *Earth*, ſhort and tractable, yet not ſo macerated as to loſe any

any of its Virtue. The proper Seaſon therefore for this Work, is the Beginning of the Autumnal *Equinox*, and *Wind* weſterly, both to prepare and lay it on your Land; that, whether it be of wet or dry Conſiſtence, it may have a gentle ſoaking into the *Earth*. As for freſh *Dung*, ſuch as *Sheep* make when they are folded, it is good Advice to cover it with Mould as ſoon as poſſible, before the Sun have over-dry'd it, for the Reaſon before hinted; and by this early Application you will find all that is ſtiff, and yet any ways contumacious, ſubdu'd, and perfectly prepar'd before you turn it in. If you would meliorate Ground for *Fruit-trees*, *Roots* and *Eſculents* of the *Orchards* and *Olitory-Garden*, be cautious that the hotter *Dungs* approach not immediately to their Stems or Roots, without ſuch a Circumpoſition of natural Mould as we have commended. But this is a Note for ſuch as think fit to uſe the Soil *ſteaming* as it comes from the Heap; but if it be prepar'd as we have ſhew'd, there is no danger even of immediate Contact. And the ſame is to be obſerv'd in *Ablaqueation*, where we find Cauſe to *bare* the Roots of Trees, and expoſe them to the Air for freſh Influence, or to abate Exuberances; and that the Cavity be not fill'd all at once (when we conceive the Roots have been ſufficiently air'd) but gradually from Month to Month, as from *October* till the beginning of *March*; and upon other Occaſions, leaving the Surface rough, rather than too *compt* and exquiſitely trimm'd, if only you dig your Ground; which once in two or three Years, four or five, (as you perceive your Trees to require Culture) is adviſeable, and then to mingle the *Earth* with a thorough ſoiling, and refreſh it with the impregnate Water of your *Ciſtern*, will exceedingly recover a worn-out Plantation. This *Irrigation* may alſo be yearly given to the Roots of your *Fruit-trees* about *June* and *July*; and the ſpreading of a little good Soil upon the Surface, and rough chopping it in with the Spade before Winter, is good Husbandry, to waſh in amongſt the Roots, and to draw them upwards, the ſhallow running of which is of ſo great Importance: But of this already.

And thus having ſhew'd how to prepare, ripen, ſeparate, and apply the ſeveral *Compoſts* (which for diſtinction ſake we call the *dry Mixture*); I am next to deſcribe the *Liquid* in many particulars, not much differing from the former Proceſs.

'Twixt *Eaſt* and *North* erect a *Pergola* or *Shed*, ſo contriv'd with a Cover, as to exclude or admit the *Rain*, *Snows*, and Weather at pleaſure; ſink a *Pit* for the *Ciſtern*, as you did the former under it; caſt into it all the *acid* Plants, bitter and rank *Weeds* that come in your way, and grow in the neglected Corners of your Grounds; ſuch as *Eſula*, *Hemlock*, *Docks*, *Thiſtles*, *Fumary*, *Tobacco-ſtalks*, *Wormwood*, *Cabbage-leaves* and *Stalks*, *Aconites*, the Leaves, Traſh and Offal, ſuch as Cattle will not touch; to theſe add *Pigeons* and *Poultry-dung*, with their *Quills* and *Feathers*; any ſort of *Aſhes*, *Soot*, *Hogs-hair*, *Horn*, *hard Bones*, ſuch as the *Dogs* have gnawn; alſo *Urine*, *Blood*, *Garbage*, *Pickle*, *Brine*, *Sea-water*, (if conveniently to be had) otherwiſe Pond-water, to ſprinkle it with, and keep it moiſt to accelerate Putrefaction; but when all is well conſum'd, forbear the pouring on of inſipid Liquors, and thus leave it till it be dry; then air, mingle and work your *Compoſts* as you were directed above, or boil it into *Petre*, caſting what you find not well digeſted into the *Ciſtern* again for another Year, and with a little Addition it will give you half the Quantity of the former,

and, provided that you ſupply the *Magazine*, a continu'd and farther Increaſe. Indeed this *Salt* and *Compoſt* is not immediately fit for Uſe, till it be well dulcify'd and purg'd from its over Acrimony, therefore mix it well with your Mould, and dilute it as you ſee Cauſe. The *Receipt* is ſet down by old *Glauber* for the effecting of wonderful *Vegetation*, by the Aſſiſtance of certain *Circulatory* Veſſels to prepare the *Oily Succus*, and pinguid Juice, which that Author teaches in his *Miraculum Mundi*, to extract not only out of theſe Materials, but out of *Turf*, *Wood* and *Stone* it ſelf, by *calcining* and burning them in cloſe and *reverberating* Furnaces, to which a *Tube*, adapted near the bottom, may convey the Spirits into a *Recipient*, as he deſcribes the Proceſs. I mention this the rather, for the real Effects which I have been told of this *Menſtruum* from very good Teſtimony: And doubtleſs he who were skill'd to extract it in Quantity (and to dulcify and qualify it for Uſe) a true *ſpiritous Nitre* may do abundantly more, in the way of the Improvements we have celebrated, with a ſmall Quantity, than with whole Loads, nay Hundreds of Loads of the beſt and richeſt of *dry Compoſts*, which he can deviſe to make. But beſides this, any Houſe of *Ordure*, or *rancid* Mold, ſtrong *Salts*, *vinous* Liquors, *Urine*, *Aſhes*, *Duſt*, *Shovelings* of the *Kennels* and Streets, *&c.* kept dry and cover'd for three or four Years, will be converted into *Petre* without half this Trouble; eſpecially if you mingle it with the Dung of *Pigeons*, *Poultry*, and other *ſalacious* Fowl which feed on *Corn:* Or thoſe who would not be at the Charge of diſtilling for theſe Advantages, may make Experiment of the ſo famous *Muckwater*, not long ſince cry'd up for the doing Wonders in the Field: Throw off the ſhorteſt and beſt *Marl* into your *Ciſtern*, exceedingly comminute and broken, which you may do with an Iron Rake, or like Inſtrument, till the *Liquor* become very thick; caſt on this the Dung of *Fowl*, *Conies*, *Sheep*, &c. frequently ſtirring it; to this add the Soil of *Horſes* and *Cows*, *Grains*, *Lees* of *Wine*, *Ale*, *Beer*, any ſort of Beverage, *Broths*, *Brine*, *fatty* and *greaſy Stuff* of the *Kitchen*; then caſt in a Quantity of *Lime*, or melting *Chalk*, of which there is a ſort very unctuous; alſo *Blood*, *Urine*, &c. mixed with the Water, and with this ſprinkle your Ground at ſeaſonable times; and when you have almoſt exhauſted the Ciſtern of the Liquid, mingle the Reſidue with the groſſer *Compoſt* of your *Stable* and *Cowhouſe*, and with Layers of *Earth*, *Sand*, *Lime*, S. S. S. frequently moiſten'd with uncrude Water; the taking up of which you may much facilitate, by ſinking a *Tub* or Veſſel near the corner of the *Ciſtern*, and piercing it with large Holes at the Bottom and Sides, by which Means you may take it out ſo clean, as to make Uſe of it through a great *Syringe* or watering Engine, ſuch as being us'd to extinguiſh *Fire*, will exalt and let it fall by Showers on the Ground, and is much the more natural way of Irrigation, and diſpatches the Work.

This *Liquor* has the Reputation alſo for Inſuccation of *Corn*, and other Grain, to which ſome add a fine ſifting of *Limeduſt* on it, and when that is dry, to repeat it with new Infuſions and Siftings: But,

There is yet a ſhorter *Proceſs*, namely, the watering with *Fiſhmongers-waſh*, impregnated with the Sweepings of *Ships* and *Veſſels* trading for *Salt*, adding to it the *Blood* of the Slaughter-houſe, with *Lime*, as above; but this is alſo much too fierce for any preſent

ſent Uſe, till it be perfectly diluted, which is a Caution indiſpenſibly neceſſary, whenever you would apply ſuch powerful Affuſions, leſt it deſtroy and burn up, inſtead of curing and enriching. Another take as follows:

Rain-water of the *Equinox*, q. s. boil'd with ſtore of *Neats-dung*, till it be very ſtrong of it, diſſolve one Pound of *Saltpetre* in every Pottle of Water; whilſt this is a little tepid, macerate your *Seeds* for twenty-four Hours, dry them gently, rather with a Cloth than by the Fire; ſow in the barreneſt *Earth*, or water Fruit-trees with it, for prodigious Effects. Or thus:

Take two Quarts of the ſame Water, *Neats-dung*, as before, boil'd to the Conſumption of half; ſtrain it, caſting into the Percolation two Handfuls of *Bay-ſalt*, and of *Saltpetre ana*. Another:

Take *Rain-water*, which has ſtood till putrified, add to it *Neats*, *Pigeon* or *Sheeps-dung*, expoſe it for *Inſolation* a Week or ten Days, then paſs it through a coarſe Strainer, infuſe more of the ſame Soil, and let it ſtand in the *Sun* a Week longer, ſtrain it a ſecond Time, add to it *Common Salt*, and a little *Oxes Gall*, &c. Another:

Take *Quick-lime*, *Sheeps-dung* at Diſcretion, put into Rain-water four Fingers eminent; to ten Pints of this *Liquor*, add one of *Aqua-vitæ*, macerate your Seeds, or water with it any lean Earth, where you would plant for wonderful Effects.

Infuſe three Pounds of the beſt *Indian Nitre* in fifteen *Gallons* of Water, irrigate your barren Mould; 'twas ſucceſsfully try'd amongſt *Tulips* and *Bulbs*, where the Earth ſhould by no means (as we have ſaid) be forc'd by *Compoſts*. But a gentler than either, is,

A Dilution of *Milk* with *Rain-water*, ſprinkled upon unſlack'd *Lime*, firſt ſifted on your Beds, and ſo after every watering the *Lime* repeated.

Theſe, with divers more which I might ſuperadd, not taken and tranſcrib'd out of common *Receipt-Books*, and ſuch as pretend to *Secrets*, but moſt of them experimented, I thought fit to mention; that upon repetition of Tryals, the Curious might ſatisfy themſelves, and as they have Opportunity improve them, whilſt perhaps, as to *Irrigations*, leſs exalted Liquors were more natural. And what if Eſſays were made of Liquors *per Lixivium*, the Plant reduc'd to Aſhes; might it not be more connatural, ſince we find by more frequent Tryal, that the burning of *Stubble* before the Rains deſcend on it, impregnates Ground by the diſſolution of its ſpermatick *Salts?* I only name the naked *Phlegm* of *Plants* diſtill'd either to Uſe alone, or extract the former *Salt*; but I ſay, I only mention them for the Curious to examine, and *ex abundanti*. For certainly (to return a little, and ſpeak freely my Thoughts concerning them) moſt exalted *Menſtrua*, and (as they dignify them with a great Name) *Eſſentiated Spirits*; I ſay, all haſty Motions, and extraordinary *Fermentations*, though indeed they may give poſſibly ſudden Riſe, and ſeemingly exhalt the preſent Vigor of *Plants*, are as pernicious to them as *Brandy* and Hot-waters are to Men; and therefore where-ever theſe *ardent* Spirits are apply'd, they ſhould be poured at convenient Diſtances from any part of the *Plant*, that the Virtue may be conveyed through ſome better qualified Medium. But when all is done, Waters moderately impregnated and imbodied with honeſt *Compoſts*, and

ſet in the *Sun*, are more ſafe, and I think more natural: For, as the learned Dr. *Sharrock* truly affirms, *Water* is, of its own Conſtitution alone, a Soil to *Vegetables*, not only as the moſt genuine *Vehicle* of the Riches which it imparts to *Plants*, through the ſeveral Strainers, and by means of which all Change and Melioration is effected; but for that it is, of all other Subſtances, beſt diſpoſed for Ingreſſion, to inſinuate into, and fertilize the *Earth*, which is the reaſon that floated and *irriguous* Grounds are ſo pregnant. Beſides, it is, of all that pretend to it, neareſt of *Blood* (as I may ſay) to the whole *Vegetable* Family. For to aſſert with any Confidence, what part of the *mere Earth* paſſes into their Compoſition; or whether it ſerve (as we touch'd before) only for Stability, or as a *Womb* and Receptacle to their *Seeds* and *Eggs* (for ſo we are taught to call the *Seeds* of *Plants*) I ſhall not undertake to diſcuſs. Every body has heard of *Van-Helmont*'s *Aſh-tree*; and may, without much Difficulty, repeat what has been experimented, by exquiſitely weighing the Mould before and after a *Gourd* is planted in it, and till it be grown to Bulk and full Maturity, fed with Water only; how much *Liquor* is inſum'd, and how little of the *Earth* conſum'd, to make ſome Conjecture; though I do not yet conceive the *Earth* to be altogether ſo dull and unactive, as to afford no other Aid to the Generation of what ſhe bears; the diverſity of Soils being (as we have ſhew'd in this Diſcourſe) ſo infinitely various, and the difference of inviſible Infuſions ſo beyond our *Arithmetick*. But if we give *Liquids* Prædominion, and at leaſt the *Maſculine* Preference, be they *Salts* or *Spirits* (that is, nitrous Spirits) conveyed into her Boſom how they will; ſure we are, that *Water* and *Vegetables* are much nearer of Alliance, than either *Water* or *Air* are with the *Earth* and Mould. But neither do I here alſo by any means exclude the *Air*, nor deny its perpetual Commerce, and benign Influences, charg'd as it comes with thoſe pregnant and ſubtil Particles, which inſinuating into the *Earths* more ſteady, and leſs *volatile Salts*, and both together invading the *Sulphur*, (and freeing them from whatſoever they find contumacious) that inteſtine *Fermentation* is begun and promoted, which derives Life, and Growth, and Motion, to all that ſhe produces. That by the *Air*, the moſt *efflete* and *elixiviated* Mould comes to be repair'd, and is qualified to attract the prolifick *nitrous* Spirits, (which not only diſpoſes the *Earth* to this impregnating *Magnetiſm*, but converts her more unactive *fixed Salts* into quite another Genius and Nature,) the learned Dr. *Mayow* has ingeniouſly made out; and all this by a naked Expoſure to the *Air* alone, without which it produces nothing: Nor can *Plants* (totally excluded from the *Air*) live, or ſo much as erect themſelves to any thriving Purpoſe, as being depriv'd of that *Breath* and vital *Balm*, which no leſs contributes to their Growth and Nouriſhment, than does the *Earth* it ſelf with all our Aſſiſtances: For that *Plants* do more than obſcurely *reſpire*, and exerciſe a kind of *Periſtaltick* Motion, I little doubt, from the wonderful and conſpicuous Attraction and Emiſſions which ſome of them diſcover; particularly the *Aloes*, and other *Sedums*, and ſuch as conſiſting of leſs cold and viſcous Parts, ſend forth their *Aromatick* Wafts at conſiderable Diſtance.

Tractat. Medico-Phyſ.

Beſides,

Beſides, we find that *Air* is nearer of kin and affinity to *Water*, than Water is to *Plants*; unleſs I ſhould affirm, that *Air* it ſelf were but a thinner *Water*; for how elſe are thoſe *Vines*, and other Trees of prodigious growth, maintained amongſt the barren Rocks, and thirſty Pumices, where Rains but ſeldom fall, if not from this *rorid* Air. Thus a *Birch-Tree* has been found to grow to a very conſiderable Subſtance and Bulk, whoſe Roots were twin'd and crumpl'd in the hard Mortar of an old dry Wall, and others that grew out of a porous and otherwiſe impenetrable Stone, by having Water only pour'd upon it. Such Virtue muſt either the *Dirt* or the *Air* impart, without any other viſible Cauſe: Of which ſee the *Voyage* to *Siam*. Not to inſiſt again, that perhaps even theſe Rocks themſelves may once have ſprung from liquid Parents; and how little, even ſuch as are expos'd to continual Showers in other *Climates*, abate of their Magnitude, ſince we rather find them to increaſe; and that alſo the *Fruits* and *Juices* of *Vegetables* ſeem to be but the *Concretion* of better concocted *Water*, and may not only be converted into *lignous* and woody Subſtance, (as the learned Dr. *Beale* has ſomewhere inſtanc'd in a Diſcourſe preſented to you, and Recorded in the *Public Tranſactions*) but is apt enough to *petrify* and become arrant Stone.

Whatever then it be which the *Earth* contributes, or whether it contain univerſally a *Seminal* Virtue, ſo ſpecified by the *Air*, *Influences*, and *Genius* of the *Clime*, as to make that a *Cinnamon*-Tree in *Ceilon*, which is but a *Bay* in *England*, is paſt my Skill to determine; but 'tis to be obſerv'd with no little wonder, what Monſieur *Bernier*, in his Hiſtory of the *Empire* of the *Mogul*, affirms to us of a Mountain there, which being on one ſide of it intolerably hot, produces *Indian Plants*, and on the other, as intemperately cold, *European* and Vulgar. Not here to paſs without notice at leaſt, what even the moſt exhauſted Mould will (to all appearance) produce ſpontaneouſly, when once it has been well expos'd to the *Air*, and heavenly Influences; if what ſprings up be not poſſibly from ſome *volatil* Rudiments and real Seeds, tranſported by *Winds*, higher than we uſually place our Experiments, unleſs we cou'd fix them upon *Olympus* top: But *Porta* tells us with more Confidence, that he took *Earth* from a moſt profound and dry place, and expos'd it on ſuch an Eminence, as to be out of reach even of the *Winds*; but it produc'd, it ſeems, only ſuch *Plants* as grew about *Naples*, and therefore may be ſuſpected.

To return then again from this Digreſſion, and purſue our *Liquids*; where there is good *Water*, there is commonly good *Earth*, and *vice verſa*; becauſe it bridles and tempers the *Salts*, abates the *Acidity* and Fierceneſs of the *Spirits*, and imparts that uſeful ligature and connexion to the Mould, without which it were of no uſe for *Vegetation*. In the mean time, of all Waters, that which deſcends from Heaven we find to be the richeſt, and propereſt in our work, as having been already *meteoriz'd*, and circulated in that great *Digeſtory*, enrich'd and impregnated with *Aſtral* Influences from above at thoſe propitious Seaſons; whence that Saying, *Annus fructificat*, *non Tellus*, has juſt Title to a Truth we every Year's Revolution behold and admire, when the ſweet Dews of *Spring* and *Autumn* (hitherto conſtipated by *Cold*, or conſumed with too much *Heat*) begin to be looſened, or moderately condens'd, by the more benign temper of the *Air*, impregnating the prepared *Earth* to receive the *Nitrous* Spirits deſcending with their bal-

my Pearls, yet with ſuch difference of more or leſs benign, (as Vapours haply, which the *Earth* ſends up, may be ſometimes qualified,) that nothing is more uncertain. And this we eaſily obſerve from the Labours of the induſtrious *Bee*, and her precious *Elixir*, when for ſome whole Months ſhe gathers little, and at other times *ſtives* her waxen *City* with the harveſt of a few propitious days. But I am gone too far, and therefore now ſhall ſet down only a few Directions concerning *watering*, and ſo diſmiſs the Subject and your Patience.

1. It is not good to water new-ſown *Seeds* immediately, as frequently we do, and which commonly burſts them; but to let them remain eight and forty Hours in their Beds, till they be a little glutted with the natural Juice of the *Earth*: But then neither muſt you ſo neglect their *Beds*, as to become totally dry; for if once the *Seeds* crack through Heat, their little *Souls* exhale; therefore till they peep, you muſt ever keep them in a juſt temper for moiſture, and be ſure to purge them of predaticious *Weeds* betimes: In a word, theſe *Irrigations* are to be conducted according to the quality of the *Seeds*, thoſe of hard *Integuments* requiring more plentiful refreſhings.

2. Never give much *Water* at one time; for the Surface of the *Earth* will often ſeem very dry, when 'tis wet enough beneath; and then the *Fibres* rot about *Autumn*, eſpecially in *Pots* and *Caſes*, winter'd in the *Green-houſe*. To be the more ſecure, we have already caution'd *Gardiners* to keep their bottoms hollow, that nothing ſtagnate and fix too long, which ſhould be but tranſitory. If ſuch Curioſities ſtrike no Root by *September*, the Leaves deſert them certainly at *Spring*. The reaſon is want of *Air*, not Moiſture. Therefore in all Intervals of ſeverer *Froſts*, and rigorous Winter-weather, be ſparing of Refreſhings, and unleſs you perceive their Leaves to crumple up and fall, (which is the language for *Drink*) give them as ſparingly as you can. Indeed, during the *Summer*, and when they are expos'd, they require almoſt perpetual Irrigation, and that the Liquor be well impregnated with proper Compoſt. It is ever adviſeable to *water* whilſt the Ground is a little *moiſt*, and not totally *dry*, eſpecially during the growing Seaſons, for it *ſtunts* the *Plant*, and intercepts its progreſs. But in hard *Froſts*, or *foggy* Seaſons, watering your houſed Plants endangers them by Muſtineſs, and a certain *Mill-dew* which they contract. On the other hand,

Applications too *dry* create an intemperate Thirſtineſs, and then they drink unmeaſurably, and fall into *Dropſies*, *Jaundies*, *Fevers*, ſwell, languiſh and rot; and if the Liquor prove too crude, (as commonly it does, if taken from running and hungry Fountains) it extinguiſhes the natural Heat, and obſtructs the Pores; and therefore whenever you are conſtrain'd to make uſe of ſuch Drink, expoſe it firſt to the warm *Sun* for better concoction, infuſing *Sheep*, *Pigeons*, or *Neats-dung*, to give it body: But though *Spring-water* be ſo bad, ſlow running *River* is often very good, and *Pond-water* excellent, ſo it be ſweet; but all ſtinking Pools, *Mineral* and *Bituminous* Waters, are not for our uſe; and often good *Air* is as needful as good Water; *Worms*, *Mouldineſs*, *Cankers*, *Conſumptions* and other *Diſeaſes*, being the uſual and fatal conſequences of theſe Vices.

If you be to plant in freſh and new broken-up *Earth*, and that the Seaſon or Mould be too dry, 'tis to be *water'd*; but then give it a competent ſprinkling, or ſifting of dry and fine Mould upon what you have refreſh'd,

refreſh'd, and then beating it a little cloſe with the back of your *Spade*, plant it ſucceſsfully; for this you will find to be much better, than to *water* it after you have planted (as the Cuſtom is) and as you may obſerve in ſetting *Violets*, *Auricula's*, *Primroſes*, and other *Capillaries*, planted in Beds or Bordures, and then daſh'd with a Flood of *Water*, which ſo ſoon as the *Sun* has look'd upon, reſign and loſe their Tinctures, ſcorch and ſhrivel up: Here therefore let *Gardeners* be cautious how they expoſe their *Exoticks* and choicer *Caſe-Plants*, which many times having born the Winter bravely in the *Conſervatory*, dwindle away, and are loſt on the ſudden, by being too ſuddenly plac'd in the Eye of the *Sun* in *March*, (or later) when they moſt of all require the Protection of a thin *Hedge*, or *Canvas Curtain*, to break his ſcorching Darts, as well as defend them from our then too conſtant and rigorous *Eteſians*. Laſtly,

For the *Seaſon* likewiſe of this Work, let it be towards the *Evening* in *hot* and *Summer* Days, for the Reaſon immediately aſſign'd; for the Moiſture being in a ſhort time drunk up, deſerts the *Plant* to the burning *Planet*; and hence it is, that *Summer Miſts* are ſo noxious, and *Meridian Waterings*; and therefore the beſt Expedient is, upon ſuch Exigencies, to pour your Refreſhings rather all over the *Area* on which your *Caſes* of choice and rare Shrubs are plac'd, and among the Alleys and Paths between your *Beds* of *Flowers*, for the raiſing artificial *Dews*, (by which is unfolded no common Secret;) or water them *per lingulam*, and *guttatim*, than either with the Pot or Bucket: And after this manner, if at other Seaſons they ſtand in need of Heat and Comfort of Warmth, by ſtrewing *Sand* or *Cinders* on the ſame Intervals, the Reflection will recreate them upon all Emiſſions of the Sun-beams.

As for groſſer *Plantations*, and Trees of old *Orchard-Fruits*, Moderation is alſo to be obſerved, and not to daſh on ſuch a quantity near the *Stem* and *Body*; but firſt with the *Spade* to looſen the *Earth* about them, eſpecially towards the Extremities of the tendereſt Roots, which generally ſprout at the ends of the moſt woody, whoſe Mouths are ſhut with tougher Bark. Theſe therefore may be cut ſloping to quicken them a little, and make them ſtrike freſh *Fibres*; eſpecially if ſome rich and tempting Mould be ſeaſonably apply'd: For Trees will (as we ſhew'd) with very little *Earth* to cover them, take faſt Root (provided you ſtabliſh them againſt impetuous Winds, Shocks and Accidents of Force) and thrive exceedingly with this Refreſhment.

Some make pretty large *Holes* with an Iron *Crow*, or (which is better) a pointed *Stake*, and pour the *Liquor* in at thoſe Overtures; but beſides that by this means they wound the Roots, (which *gangrenes*, and ſometimes kills the Tree) if the Holes be not fill'd, the *Air* and Moiſture mouldies them: So as when all is ſumm'd together, there's nothing comparable to frequent *ſtirring* up the Ground, opening the dry Clod, and *watering* upon that; and if you lay any *Fern-brakes*, or other Traſh about them, capp'd with a little Earth, to entertain the Moiſture, and skreen it from the Heat, let it not be wadded ſo cloſe, or ſuffer'd to lie ſo long, as to contract any Muſtineſs; but rather looſe and eaſy, that the *Air* may have free Intercourſe, and to break the more intenſe Ardours of the ſcorching Sun-beams.

Thus I have exercis'd your *Lordſhips* and theſe noble *Gentlemens* Patience with a dull Diſcourſe of *Earth*, *Mould* and *Soil*; but, I truſt, not altogether without ſome *Fruit*; or, at leaſt, not improperly *pro hic & nunc*; as the Subject has relation to what has ſo lately been produc'd, and with happy Event made out by thoſe learned Perſons who have entertain'd this illuſtrious *Society* with the *Anatomy* of *Plants*.

POMO-

POMONA:

OR, AN

APPENDIX

CONCERNING

FRUIT-TREES,

In relation to

CIDER,

The *Making*, and ſeveral ways of *Ordering* it.

——*Carpent tua Poma nepotes.*

VIRG. Eclog. ix.

To the Right Honourable

Thomas *Earl of* Southampton,

Lord High-Treasurer of *ENGLAND*, &c.

My Lord,

IF great *Examples* did not support it, the Dignity and Greatness of your *Person* would soon have given check to this Presumption: But since *Emperors* and *Kings* have not only gratefully accepted *Works* of this nature, but honour'd them likewise with their own sacred Hands, that *Name* of yours (which ought indeed never to appear but on Instruments of *State* and Fronts of *Marble*, consecrating your *Wisdom* and *Virtues* to *Eternity*) will be no way lessen'd by giving Patronage to these appendant *Rusticities*. It is from the Protection and Cherishment of such as your *Lordship* is, that these *Endeavours* of ours may hope one day to succeed and be prosperous. The noblest and most useful Structures have laid their Foundations in the *Earth*: If that prove firm *here* (and *firm* I pronounce it to be, if your *Lordship* favour it) we shall go on and flourish. I speak now in relation to the *Royal Society*, not myself, who am but a *Servant* of it only, and a *Pioneer* in the *Works*. But be its *Fate* what it will, your *Lordship*, who is a *Builder*, and a Lover of all *Magnificences*, cannot be displeas'd at these agreeable Accessories of *Planting*, and of *Gardening*. But, my *Lord*, I pretend by it yet some farther Service to the *State* than than of merely *Profit*, if in contributing to your Divertisement I provide for the *publick Health*, which is so precious and necessary to it in your excellent *Person*. Vouchsafe Pomona your *Lordship's* Hand to kiss, and the humble *Presenter* of these *Papers* the Honour of being esteem'd,

My Lord,

Your most Humble,

and most Obedient Servant,

J. Evelyn.

POMONA:

Or, An APPENDIX concerning

FRUIT-TREES,

In Relation to

CIDER,

The Making, and ſeveral ways of Ordering it.

The PREFACE.

SAT Quercus *was the* Proverb; *and it is now time to walk out of the* Woods *into the* Fields *a little, and to conſider what Advancement may be there likewiſe made by the planting of* FRUIT-TREES. *For after the* Earth *is duly cultivated, and pregnant with a Crop of* Grain; *it is only by the Furniture of ſuch* Trees *as bear* Fruit, *that it becomes capable of any farther* Improvement. *If then by diſcovering how* this *may beſt be effected, I can but raiſe a worthy Emulation in our* Countrymen; *this addition of noble* Ornament, *as well as of* Wealth *and* Pleaſure, Food *and* Wine, *may* (*I preſume*) *obtain ſome grateful admittance amongſt all Promoters of Hortulan Induſtry.*

Ἄλις δρυός: *In eos, qui relicto victu ſordido, ad elegantiorem lautioremque digrediuntur.*

But before I proceed, I muſt, and do ingenuouſly acknowledge, that I preſent my Reader *here with very little of my* own, *ſave the Pains of* collecting *and* digeſting *a few diſpers'd* Notes (*but ſuch as are to me exceedingly precious*) *which I have receiv'd*; ſome *from worthy, and moſt experienc'd* * Friends *of mine*; *and* others, *from the well-furniſh'd* Regiſters, *and* Cimelia *of the* ROYAL SOCIETY. *Eſpecially, thoſe* Aphoriſms, *and* Treatiſes *relating to the* Hiſtory *of* Cider, *which by expreſs Commands they have been pleaſed to enjoin I ſhould publiſh with my* Silva.

* Eſpecially from the moſt excellently learned Dr. *Beale* of *Yeavil* in *Somerſetſhire*, a Member of the Royal Society.

It is little more than an Age, *ſince* Hops (*rather a* Medical, *than* Alimental *Vegetable*) *tranſmuted our wholeſome* Ale *into* Beer; *which doubtleſs much altered our* Conſtitutions: That *one* Ingredient (*by ſome not unworthily ſuſpected*) *preſerving* Drink *indeed, and ſo by cuſtom made agreeable; yet repaying the Pleaſure with tormenting Diſeaſes, and a ſhorter Life, may deſervedly abate our fondneſs to it; eſpecially, if with* this *be conſider'd likewiſe, the* Caſualties *in planting it, as ſeldom ſucceeding more than* once *in* three *Years; yet requiring conſtant Charge and Culture; beſides that it is none of the leaſt Devourers of young* Timber.

And what if a like Care, *or indeed one quarter of it, were* (*for the future*) *converted to the Propagation of* Fruit-trees, *in all parts of this* Nation, *as it is already in* ſome, *for the benefit of* Cider? (*one* Shire *alone within* twenty *Miles compaſs, making no leſs*, yearly, *than* Fifty thouſand Hogſheads) *the* commutation *would* (*I perſuade my ſelf*) *rob us of no great Advantage; but preſent us with one of the moſt delicious and wholeſome* Beverages *in the World.*

It was by the plain Induſtry *of one* Harris, (*a* Fruiterer *to King* Henry *the* Eighth) *that the* Fields, *and* Environs *of about thirty* Towns *in* Kent *only, were planted with* Fruit, *to the univerſal Benefit, and general Improvement of that* County *to this day; as by the noble Example of my Lord* Scudamor, *and of ſome other Publick-ſpirited* Gentlemen *in thoſe Parts, all* Herefordſhire *is become, in a manner, but one entire* Orchard: *And when his* Majeſty *ſhall once be pleas'd, to command the* Planting *but of ſome* Acres, *for the beſt* Cider-fruit, *at every of his Royal* Manſions, *amongſt other of his moſt laudable* Magnificences; Noblemen, Wealthy Purchaſers, *and* Citizens, *will* (*doubtleſs*) *follow the* Example, *till the preference of* Cider (*wholeſome, and more natural* Drinks) *do quite vanquiſh* Hops, *and baniſh all other* Drogues *of that nature.*

But this Improvement (*ſay ſome*) *would be generally obſtructed by the* Tenant, *and* High-ſhoon-men, *who are all for the* preſent Profit; *their Expectations ſeldom holding out above a Year or two at moſt.*

To this 'tis anſwer'd; That therefore ſhould the Lord of the Manor *not only encourage the* Work *by his own* Example, *and by the Applauſe of ſuch* Tenants *as can be courted to* delight *in theſe kinds of* Improvements; *but ſhould alſo oblige them by* Covenants *to plant certain* Proportions *of them, and to* preſerve *them being planted.*

To fortify this profitable Deſign, *It were farther to be deſir'd, that* (*if already there be not* effectual Proviſion *for it, which wants only due* execution *and* quickning) *an* Act *of* Parliament *might be procur'd for the ſetting but of two or three* Trees *in every* Acre *of Land that ſhall hereafter be encloſed, under the Forfeiture of Six-pence* per *Tree, for ſome* Publick *and* Charitable Work, *to be levy'd on the* Defaulters. *To what an innumerable Multitude would* this, *in few Years, inſenſibly mount; affording infinite proportions, and variety of* Fruit *throughout the* Nation, *which now takes a* Potion *for a Refreſhment, and drinks its very* Bread-corn?

I have ſeen a Calculation *of twenty* Fruit-trees *to every* Five *Pounds of yearly Rent; forty to* Ten; *ſixty to* Fifteen; *eighty to* Twenty; *and ſo according to the proportion. Had all our* Commons, *and* Waſte-lands *one* Fruit-tree *but at every* hundred Foot *diſtance, planted, and fenc'd at the Publick Charge, for the bene-*

fit

ſit of the Poor, *whatever might dye and miſcarry, enough would eſcape able to maintain a* Stock, *which would afford them a moſt incredible Relief. And the* Hedge-rows, *and the* Champion-Grounds, Land-diviſions, Mounds, *and* Head-lands (*where the* Plough *not coming, 'tis ever abandon'd to* Weeds *and* Briars) *would add yet conſiderably to theſe* Advantages, *without Detriment to any Man.*

As touching the Species, *if much have been ſaid to the Preference of the* Red-ſtrake *before other* Cider-Apples, *this is to be added; That as the beſt* Vines, *of richeſt* Liquor *and greateſt* Burthen, *do not ſpend much in* Wood *and unprofitable* Branches, *ſo nor does this* Tree: *For though other* Cider *may ſeem more pleaſant, (ſince we decline to give* Judgment *of what is unknown to us) we yet attain our Purpoſe, if* This *ſhall appear beſt to reward the* Planter *of any in preſent Practice, eſpecially for the* Generality; *becauſe it will fit the moſt* Parts *which are addicted to theſe* Liquors, *but miſs of the right* Kinds, *and prove the moſt ſecure from external Injuries and Invaders. But to give* Cider *its true Eſtimation; beſides that it coſts no* Fuel *to* brew *it, and that the Labour is but* once *a* Year; *it is good of a thouſand kinds, proper for the* Cure *of many* Diſeaſes, *a kind* Vehicle *for any ſanative* Vegetable, *or other* medical *Ingredients; that of* Pippins *a* Specific *for the* Conſumption; *and generally, all ſtrong and pleaſant* Cider *excites and cleanſes the* Stomach, *ſtrengthens* Digeſtion, *and infallibly frees the* Kidneys *and* Bladder *from breeding the* Gravel *and* Stone; *eſpecially if it be of the genuine* Irchin-field Red-ſtrake; *not omitting how excellently it holds out good many Years to* Improvement, *if full-body'd and ſtrong, even in the largeſt and moſt capacious* Veſſels; *ſo as when for* ordinary Drink, *our* Citizens *and honeſt* Countrymen *ſhall come to drink it moderately* diluted (*as now they do ſix-ſhilling* Beer *in* London, *and other Places) they will find it marvellouſly conduce to Health; and* labouring People, *where it is ſo drank, affirm, that they are more ſtrengthen'd for hard Work* by *ſuch* Cider, *than by the very beſt* Beer.

But not to refine any farther upon the rare Effects of Cider, *which is above all the moſt eminent, ſoberly to exhilerate the* Spirits *of us* Hypochondriacal Iſlanders, *and by a* ſpecific Quality *to chaſe away that unſociable* Spleen *without Exceſs; we muſt not forget that the very Bloſſom of the Fruit perfumes and purifies the ambient* Air, *which (as Dr.* Beal *well obſerves in his* Herefordſhire Orchards) *is conceiv'd conduces ſo much to the conſtant* Health *and* Longevity, *for which that* Country *has been always celebrated, fencing their* Habitations *and ſweet* Receſſes *from* Winds *and* Winter *Invaſions, the Heat of the* Sun, *and his unſufferable Darts:* And if, *ſaith he,* we may acknowledge grateful *Trifles,* for that they harbour a conſtant *Aviary* of ſweet *Singers,* which are *here* retain'd without the Charge of *Italian* Wires. *To which I cannot but add his following Option,* That if at any time we are in danger of being hindred from *Trade* in foreign Countries, our *Engliſh* Indignation may ſcorn to feed at their *Tables,* to drink of their *Liquors,* or otherwiſe to borrow or buy of *them,* or of any their *Confederates,* ſo long as our *native Soil* does ſupply us with ſuch excellent Neceſſaries; *and whether this be not* prophetically *ſeaſonable in the* preſent Conjuncture, *I leave wiſe Men to conſider.*

Nor do we produce theſe Inſtances *to redeem the* Liquor *from the* Superſtition, Prejudice *and* Opinions *of thoſe* Men, *who ſo much magnify the* Juice *of the* Grape *above it: But we will here add ſome* Experiments *from undeniable Succeſs* (*in ſpite of* Vintners *and* Bawds *to Men's* Palates) *were they ſufficient to convince us and reclaim the* vitiated; *or that it were poſſible to diſpute of the* Pleaſantneſs, Riches *and* Precedency *of* Drinks *and* Diets, *and ſo to provide for fit, competent, and impartial* Judges; *when by* Nature, Nation *or* Climate (*as well as by* Cuſtom *and* Education) *we differ in thoſe Extremes.*

Moſt Parts of Africa *and* Aſia *prefer* Coffee *before our nobleſt Liquors*; India, *the* Roots *and* Plants *before our beſt-cook'd* Veniſon; *almoſt all the World* crude Water *before our Country* Ale *and* Beer; *and we* Engliſh *being generally more for* inſipid, luſcious *or* groſs *Diet, than for the* ſpicy, poignant, oily, *and highly* reliſh'd, (*witneſs our univerſal Hatred of* Oils, French Wine, *or* Rheniſh *without* Sugar; *our doating on* Currants, Figs, Plumb-pottage, Pies, Pudding, Cake, *&c.*) *renders yet the Difficulty more arduous. But to make good the* Experiment.

About thirty Years ſince, one Mr. Taylor (*a Perſon well known in* Herefordſhire) *challeng'd a* London-Vintner, (*finding him in the* Country) *That he would produce a* Cider, *which ſhould excel his beſt* Spaniſh *or* French Wine. *The* Wager *being depoſited, he brings in a good* Red-ſtrake *to a private Houſe. On that* Scene, *all the* Vintner *could call to be* Judges *pronounce againſt his* Wine; *nor would any Man there drink* French Wine *without the Help of* Sugar; *nor endure* Sack *for a full Draught*; *and to thoſe who were not accuſtomed to either, the more racy* Canaries *were no more agreeable than* Malaga, *too luſcious for the Repetition. But this* Wager *being loſt, our* Vintner *renews his* Chartel *upon theſe expreſs Terms, of competent and indifferent* Arbitrators. *The* Gentleman *agrees to the Articles*; *and* thus *again after mutual Engagements it muſt be debated who were competent* Judges, *and abſolutely indifferent. Mr.* Taylor *propoſes* Three, *whereof the* odd Number *ſhould by* Vote *determine. They muſt be of the fitteſt* Ages *too, or rather the fitteſt of all* Ages, *and ſuch as were inur'd neither to* Cider *nor any* Wine; *and ſo it was agreed. The* Judges *convene*, viz. *a* Youth *of ten Years old, a* Man *of thirty, and a* Third *of ſixty*; *and by* All theſe *alſo our* Vintner *loſt the Battel. But this is not enough*; *'tis aſſay'd again by nine* Judges, *the* Ternary *thrice over*; *and there 'tis loſt alſo. To* this *we could add another, even the* Cider *of* Ledbury, (*which is not yet the beſt of* Herefordſhire) *which, when an experienc'd* London-Vintner *had taſted, he wiſh'd had been* Poiſon; *for that if it were* known *where he dwelt, it would utterly undo his* Trade. *And here I will conclude, for I think never was fairer* Duel; *nor can more be reaſonably pretended to vindicate this* Bleſſing *of* God, *and our native* Liquor *from their Contempt, and to engage our* Propagators *of it.*

To ſum up all: If Health *be more precious than* Opinion, *I wiſh our Admirers of* Wines, *to the Prejudice of* Cider, *beheld but the* Cheat *themſelves*; *the* Sophiſtications, Tranſmutations,

Tot veneficiis placere cogitur, & miramur noxium eſſe Vinum? Plin. As 'tis moſt ingeniouſly cited by Dr. *Charleton*, in his excellent Diſcourſe of the *Adulterations of Wine*, entered into the Regiſter of the *Royal Society*; and (with thoſe other moſt uſeful *Pieces* ſubjoined) ſince publiſhed, *&c.* See *Regiſt. Ro. Society, Num.* 2. 17 *Decemb.* 28. *Jan.* 1662. *p.* 67. 116, *&c.*

tations, Adulterations, Baſtardizings, Brewings, Trickings, *not to ſay, even* Arſenical Compaſſings *of the ſophiſticated* God *they adore; and that they had as true an* Inſpection *into thoſe* Arcana Lucifera, *which the* Prieſts *of his* Temples (*our* Vintners *in their* Taverns) *do practiſe; and then let them drink freely that will;* Αεισὸν μὲν ὕδωρ: Give me good *Cider.*

It is noted in our Aphoriſms *how much this* Beverage *was eſteem'd by his late* Majeſty, *and* Court, *and there referr'd to all the* Gentry *of the environing* Country, (*no ſtrangers to the beſt* Wines) *when for ſeveral* Summers *in the* City *of* Hereford (*ſo encompaſs'd with ſtore of it, and brought thither without* Charge, *or extraordinary* Subductions) *it was ſold for* Six-pence *the* Wine-quart, *not for the* Scarcity, *but the* Excellency *of it: And for the* Red-ſtrake, *that it has been ſeen* there *hundreds of times* (*with vehement and engaged competition*) *compar'd with the* Cider *of other the moſt celebrated Fruit, when after a while of Vapour, no Man inſiſted for any other* Liquor *in compariſon.*

But it is from theſe Inſtances, (*may ſome ſay*) *when the* World *ſhall have multiplied* Cider-Trees, *that it will be time enough to give* Inſtructions *for the right* Preſſing *aud* Preſerving *of the* Liquor. *The Objection is fair: But there are already more* Perſons *better furniſh'd with* Fruit, *than with* Directions *how to* uſe *it as they ſhould; when in plentiful Years ſo much* Cider *is impair'd by the ignorant* handling, *and becomes dead and ſowre, that many even ſurfeit with the* Bleſſing; *it being rarely ſeen in moſt* Countries, *that any remains good, to ſupply the defects of another Year; and the* Royal Society *would prevent all this hazard by this free Anticipation. And yet when all this is ſaid, we undertake not to divine what excellent* Cider *other* Soils *may bear; nor do we poſitively extol the* Red-ſtrake *farther than the bounds and confines of* Herefordſhire, *for the* Experiments *we have produc'd; but becauſe there are doubtleſs many ſuch* Soils *ſparſedly throughout this* Nation; *why ſhould it not incite our* Induſtry *to its utmoſt* effort, *and the commendable emulation of endeavouring to raiſe a yet* kindlier Cider-fruit *if it be poſſible, and which may prove in its ſelf as good, and as agreeable to the* Soil *where we plant it? And certainly, much of this may fairly be expected, from the Tryals, Culture, and Propagation of* Kernel-fruits *of innumerable ſorts, aud from hopeful* Wildings, *and the* peculiarity *of Grounds: I find that even in the* Weſt-Indies, *at our* Plantations *of* New-England, *one Gentleman in* Connecticut *Colony, made* 500 Hogſheads *of* Cider *in one Year out of his own* Orchard; *and that though it be in great plenty among them, yet it is ſold for* ten Shillings *the* Hogſhead.

It now remains, that I ſhould make ſome Apology *for my ſelf, to extenuate the tumultuary* Method *of the enſuing* Periods. *Indeed it was not intended for a queint or elaborate piece of* Art; *nor is it the deſign of the* Royal Society *to accumulate* Repetitions *when they can be avoided; and therefore in an* Argument *ſo much beaten as is that of dreſſing the* Seminary, Planting, *and modes of* Graffing, *it has been with Induſtry avoided; ſuch rude, and imperfect* Draughts *being far better in their eſteem* (*and according to my Lord* Bacon's) *than ſuch as are adorn'd with more* Pomp, *and oſtentous* Circumſtances, *for a*

pretence to Perfection. *The time may come, when the* Richneſs, *and* Fulneſs *of their* Collections *may worthily invite ſome more induſtrious* Perſon *to accompliſh that* Hiſtory *of* Agriculture, *of which theſe* Pieces (*like the Limbs of* Hippolytus) *are but* ſcatter'd Parts: *And it is their greateſt Ambition for the* Publick Good, *to provide ſuch* Materials, *as may ſerve to* raiſe, *and* beautify *that moſt deſirable* Structure.

J. EVELYN.

POMO-

POMONA.

CHAP. I.

Of the Seminary.

WE had not the leaſt Intention to enlarge upon this *Title*, after we had well reflected on the many and accurate Directions which are already publiſhed, as well in our *French Gardiner*, as in ſundry other *Treatiſes* of that Nature, had not a moſt worthy *Member* of the *Royal Society* (to whom we have infinite Obligations) furniſhed us with ſome Things very *particular* and *remarkable*, in order to the *Improvement* of our *Seminaries*, *Stocks*, &c. which are indeed the very *Baſis* and *Foundation* of *Cider-Orchards*. It is from thoſe precious *Papers* of *his*, and of ſome *others* (whoſe Obſervations alſo have richly contributed to this *Enterprize*) that we ſhall chiefly entertain our *Planter* in moſt of the following Periods.

Dr. Beale *of* Yeavil *in* Somerſetſhire.

Whoſoever expects from the *Kernel* of a rich or peculiar *Apple* or *Pear* to raiſe *Fruit* of the *ſame Kind*, is likely to find many Obſtructions and Diſappointments: For the *Wilding*, (*Crab* or *Pear*) *Pomus Sylveſtris*, being at the beſt the natural Product of the ſoundeſt *Kernel* in the firmeſt Land, and therefore the Guſt of the *Fruit* more ſtrongly auſtere, fierce and ſharp, and alſo the *Fruit* leſs and more woody; and the pleaſanter or plumper and larger *Apple* being the effect of ſome Inteneration, which inclines to a kind of Rebatement of the natural Strength of the Tree; the beſt Choice of *Kernels* for *Stocks* indefinitely, (and on which we may graff what we pleaſe) ſhould be from the ſoundeſt *Wilding*. For,

A *Kernel* taken from any *Graffed-Apple* as *Pippin*, *Pear-main*, &c. does moſt naturally propend to the wildneſs of the *Stock* on which 'twas inſerted, as being the natural Mother of the *Kernel*, which is the very Heart of the *Apple*; and alſo from a more deep and ſecret *Reaſon*, to be hereafter unfolded.

Apples and *Pears* requiring rather a vulgar and ordinary *Fieldland*, than a rich *Garden-mould*, (as has been often ſeen to ſucceed by frequent Obſervations) it has been found that *Kernels* ſowed in a very high *Compoſt*, and rank Earth, have produced (*large* indeed, but) *inſipid* Fruit, haſtily rotting on the Trees, before all the Parts of it were mature, and diſpoſing to *Cankers*. *Vid. Aphor.* 33.

And ſometimes when they ſeemed in outward *Figure* to bear the Shape of graffed *Apples*, from whence the *Kernels* came, yet the Guſt did utterly deceive, wanting that Vivacity and pungent Agreeableneſs.

If the *Kernels* of natural *Apples* (or of *ungraffed Trees*) ſhould produce the ſame, or ſome other variety of *Apples*, (as ſometimes it ſucceeds) yet would this Care be ſeldom *operæ pretium*, and at beſt but a Work of *Chance*, the Diſappointment falling out ſo often through the Sicklineſs of the *Soil:* Or admit *that* the moſt proper and conſtant, yet would the very *Dews* and *Rain*, by various and mutable Seaſons, and even by the *Air* it ſelf, (which operates beyond vulgar Perception, in the very Changes as well of the *Mould*, as of the *Seeds* and *Fruit*) create almoſt infinite Alterations: And the Choice having been in all places (apparently for ſome *thouſands* of Years) by propagating the moſt delicate of *Fruits* by the *Graffs*, 'tis almoſt a deſperate Task to attempt the raiſing of the *like*, or *better* Fruit from the Rudiments of the *Kernel*.

Yet ſince our Deſign of relieving the want of *Wine*, by a *Succedaneum* of *Cider*, (as lately improv'd) is a kind of *Modern Invention*, we may encourage and commend their Patience and Diligence, who endeavour to raiſe ſeveral kinds of *Wildings* for the trial of that excellent Liquor; eſpecially ſince by late Experience we have found, that *Wildings* are the more proper *Cider-Fruits*; ſome of them growing more ſpeedily, bearing ſooner, more conſtantly, and in greater abundance in leaner Land, much fuller of *Juice*, and that more maſculine, and of a more *winy* Vigor.

Thus the famous *Red-ſtrake* of *Herefordſhire* is a pure *Wilding*, and within the Memory of ſome now living, firmamed the *Scudamores-Crab*, and then not much known, ſave in the *Neighbourhood*, &c. Yet now it would be difficult to ſhew that *Red-ſtrake* which grew from a *Kernel* in that whole *Tract*, all being ſince become *graffed* Trees. Thus 'tis alſo believ'd, That the *Bromesbury Crab* (which carries the Fame in ſome Parts of *Glouceſterſhire*) and many of the white *Muſts*, and green *Muſts*, are originally *Savages*; as now in *Somerſetſhire* they have a generous *Cider*, made of promiſcuous *Kernels*, or *ungraffed* Trees, which fills their Confidence that no other *Cider* does exceed it; and 'tis indeed ſtrong, and of a generous Vigor.

Nor dare we poſitively deny, but that even the beſt of our *Table-Fruit* came alſo originally from the *Kernel:* For it is truly noted by my Lord *Bacon*, *That the* Fruit *does generally obey the* Graff, *and yields very little to the* Stock; yet ſome little it does.

The famous *Bezy d'Hery*, an excellent Musky *Pear*, was brought into the beſt *Orchards* of *France* from a *Foreſt* in *Bretany*, where it grew *wild*, and was but of late taken Notice of.

But now to the deep *Reaſon* we lately threatned: We have by an Experiment found ſome near Affinity between the *Kernel* of the *Apple*, and the *Heart* or Interior of the *Stock: For I ſaw*, (ſays Dr. *Beale*) *an old rotten* Kernel-Tree *bearing a delicate* Summer-fruit, *yielding ſtore of ſmooth* Cyder, (*'tis call'd the* French-Kernel-Tree, *and is alſo a* Dwarf *as is the* Red-ſtrake;) *and examining divers* Kernels, *many Years ſucceſſively, of that hollow and decay'd Tree, I found them always very ſmall of Growth, and empty meer Skins of* Kernels, *not unlike to the emaſculated* Scrotum *of an* Eunuch; *another younger Tree iſſuing from the ſounder part of a* Root *of the ſame old Tree, had full and entire* Kernels.

And from ſome ſuch Obſervation might the Production of *Berberries*, &c. without *Stones* be happily attempted; an *Inſtrument* fitted to take out the *Marrow* or *Pith* of the *Branches*, (as the ſame Dr. *Beal* perform'd it;) for from the *numerical* Buſh of that *Fruit* he found *ſome* Branches produce *Berberries* that had no Stones, *others* which had; and in ſearching for the *Cauſe* of the *Effect*, perceived, that the Pith or Heart was taken from the *Radicat*, or main Branches, as the other was full of Pith, and conſequently the Fruit in Perfection; of all which (he writes me word) he made ſeveral Trials on other Fruit, but left the Place before he could ſee the Event. But he adds:

Theſe many Years (*almoſt* twenty) *I have yearly try'd* Kernels *in Beds of clean* Earth, Pots *and* Pans, *and by the very* Leaves (*as they appear'd in firſt ſpringing for one Month*) *I could diſcern how far my* Eſſays *had* civiliz'd *'em: The* Wilder *had ſhorter, ſtiffer, brown or fox colour'd Leaves; the more* ingenuous *had more tender, more ſpreading Leaves, and approaching the lighter Verdure of the* Berberry *Leaf when it firſt appears.* He adds:

Some Apples *are call'd* Roſe-Apples, Roſemary-Apples, Gilly-flower-Apples, Orange-Apples, *with ſeveral other Adjuncts denominating them, from what* Reaſon *I know not.* But if we intended to try ſuch *Infuſions* upon the *Kernels* (as ſhould endeavour to alter their *Kinds*) we ſhould not approve of the bedabbling them with ſuch Infuſions, (for *over-moiſture* would rather enervate than ſtrengthen them) but rather prepare the *Earth* the *Year before* with ſuch *Inſuccations*, and then hinder it from producing any *Weeds*, till ready for the Kernels; and then in dewy Times, and more frequently when our *Climate* were ſurcharg'd with *Rain*, cover the *Beds* and *Pots* with the ſmall Leaves of *Roſemary*, *Gilly-flowers*, or other odoriferous *Bloſſoms*, and repeat it often, to the end the *Dews* may *meteorize*, and *emit* their finer *Spirits*, &c. Or if any ſhall pleaſe to be ſo liberal of their *Salts* and *Calcinations* of peculiar *Virtues*, (though poſſibly the *Eſſay* may endanger their *Seeds*) yet the Mixture of ſuch *Salts* finely reduc'd and ſtrew'd diſcreetly on their *Beds* may be a more probable Means, than thoſe *Liquid Infuſions* which have hitherto been ſo confidently boaſted. For thus alſo we are in this *Age* of ours provided of more vigorous *Ingredients* for *Trials*, than were known to the *Antients*. Finally,

From what has been deduc'd from the *wilding* of ſeveral Parts, it may manifeſtly appear, how much more *congeneal* ſome *Soil* is than other, to yield the beſt *Cider-fruit* from the *Kernel*; and the *hazle* Ground, or quicker Mould warm and light, much better than the more obſtinate *Clay*, or ranker Earth, heavy, cold, or wet. In hot *Gravelly-Grounds*, where almoſt no ſort of *Fruit* will grow, *Pears* will thrive; and a Friend of mine aſſures me of *One* that clave a *Rock*, and filling it with a little good Earth, planted a *Pear-Tree* therein, which proſper'd exceedingly; and at this Time, in the Town not far from my Dwelling, there is a *Bonne Chreſtienne* Pear-Tree plentifully bearing very goodly Fruit, which grows in a narrow Court pav'd with Flint and Pebbles, and unleſs a little in the Morning, ſhaded from all the benign Aſpects. I add this, that none may go hence without Encouragement.

CHAP. II.

Of Stocks.

THE former thus eſtabliſh'd, after all *Humours* and *Varieties* have been ſufficiently wearied, we ſhall find the *Wilding* to be the hardieſt and moſt proper *Stock* for the moſt delicate *Fruit*. This con-confirm'd by *Varro*, Lib. 1. Cap. 40. *In quamcunque arborem inſeras*, &c. and 'tis with Reaſon: However they do in *Herefordſhire*, both in Practice and Opinion, limit this Rule; and to preſerve the Guſt of any delicate *Apple*, (as of the *Pear-main*, *Quince*, *Apple*, *Stockin*, &c.) rather graff upon a *Gennet-Moyle* or *Cydoddin-Stock*, (as there called) than a *Crab-ſtock*; but then indeed they conclude the Tree laſts not ſo long; and 'tis obſerv'd, that *Apples* are better taſted from a clean, light Land, *&c.* than from ſtiffer Clay, or the more pinguid and luxurious Soil; whence we may expect ſome Aſſiſtance from the Civility of the *Stock*, which is a kind of prepared Soil, or Foundation to the *Graff*; even as our very *Tranſplantations* into better Ground is likewiſe a kind of *Graffing*.

Thus in like manner our Maſter *Varro*, *loco citato*, concerning *Pears*; *Si in Pyrum Sylvaticam*, &c. The *Wild-ſtock* does enliven the dull and phlegmatick *Apple*, and the Stock of a *Gennet-Moyle* ſweeten and improve an *Apple* that ſeems *over-tart*, as the *Pomeroy*, or ſome *Greening*, &c. or may rather ſeem to abate at leaſt ſome *Apple* over-tart and ſevere.

Your *Crab-ſtock* would be planted about *October*, at thirty two Foot Diſtance, and not *graffed* till the third *Spring* after, or at leaſt not before the *ſecond*.

But if your Deſign be for *Orchard* only, and where they are to abide, an *Interval* of ſixteen Foot ſhall ſuffice for the *Dwarfiſh* Kind, or in the Grounds where the *Redſtrake*, or other *Fruit-trees*, are of ſmall Bulk, provided the Ground be yearly turn'd up with the *Spade*, and the Diſtance quadrupled where the *Plough* has Privilege; this being the moſt expedite for ſuch as have no *Nurſery* Ground.

CHAP. III.

Of Graffs *and* Inſitions.

MAke Choice of your *Graffs* from a conſtant and well-bearing Branch, or elſe you will have a late and ſlow Return.

And as the *Stock* hath a more verdant Rind, and is capable to yield more Plenty of *Juice*, ſo let the *Graff* have more *Eyes* or *Buds*: Ordinarily three or four *Eyes* are ſufficient to give Iſſue to the *Sap*; but as well in *Apples* and *Pears*, as in *Vines*, thoſe *Graffs* or *Cions* are preferr'd, in which the *Buds* are not too far aſunder, or diſtant from the Foot thereof: And ſuch a Number of *Buds* uſually determining the length of the *Graff*, there may divers *Cions* be made of one *Branch*, where you cannot procure Plenty of them for ſeverals.

As

As to the ſucceſs of *graffing*, the main point is, to join the inward *Rind* of the *Cion* to the inward Rind of the *Stock*, ſo that the *Sap* of the *One* may there meet with the Sap of the *Other*, and theſe Parts ſhould be join'd cloſely, but not too forceably; that being the beſt and moſt infallible way, by which moſt of the quick and juicy parts are mutually united, eſpecially towards the bottom.

If the Stock be ſo big as to endanger the pinching of your *Graff*, when the *Wedge* is drawn out of the *Cleft*, let the inner-ſide of the *Graff*, which is within the wood of the *Stock*, be left the thicker, that ſo the *woody* part of the *Cion* may bear the ſtreſs, and the *ſappy* part be preſerved from bruiſing. Some by an happy hand do with good ſucceſs *graff* without cleaving the *Stock* at all, only by *Inciſions* in the *Rind*, as the *Induſtrious* Mr. *Auſtin* teaches us: But ſince this is not for every *Ruſtic* hand, nor ſeems to fortify ſo ſtrongly againſt impetuous *Winds* before the Union be *ſecure*, there had need be ſome extraordinary *Defence*.

Chuſe the ſtraighteſt and ſmootheſt part of the *Stock* for the place where you intend to *graff*: If the *Stock* be all knotty (which ſome eſteem no impediment) or crooked, rectify it with the fitteſt poſture of the *Graff*.

For a *Graff* covet not a *Cion* too ſlender; for the *Sun* and *Wind* will ſooner enforce it to wither: Yet are we to diſtinguiſh, that for *Inoculation* we take the *Bud* from a Sprig of the laſt year's ſhoot; and moſt allow that the *Cion* ſhould alſo have ſome of the former with it, that it may be the ſtronger to *graff*, and abide to be put cloſe into the *Stock*, which is thought to advance it in bearing.

In *Herefordſhire* they do frequently chuſe a *Graff* of ſeveral years growth; and for the *graffing* of ſuch large *Stocks* as are taken out of the *Woods* or *Nurſeries*, and fitted into Rows for *Orchards*, they chuſe not the *Graffs* ſo ſmall as in other Countries they require them; which has, it ſeems, occaſion'd ſome complaint from them that underſtand not the reaſon of the firſt breach of this Note. Once for all, the ſtumpy *Graff* will be found much ſuperior to the ſlender one, and make a much nobler and larger Shoot. This upon experience.

Graff your *Cions* on that ſide of the *Stock* where it may receive the leaſt hurt from the *South-weſt* Wind, it being the moſt common, and moſt violent that blows in *Summer*; ſo as the *Wind* may blow *it* to the *Stock*, not from it. And when the *Zephyrs* of the *Spring* are ſtirring, chuſe that *Seaſon* before all others for this work.

Some there are who talk of removing the *Stock* about *Chriſtmas*, and then alſo *graff* it; which there be that glory they can ſucceſsfully do even by the Fire-ſide, and ſo not be forc'd to expect a two or three Years rooting of the *Stock*: But in this *adventure* 'tis adviſeable to plunge the *Graff* three or four Inches deep in the *Stock*. Laſtly,

Be careful that the *Rain* get not into the *Clefts* of your young graffed *Stocks*: Yet it has been noted, That many old Trees (quite decay'd with an inward hollowneſs) have born as full Burdens, and conſtantly, as the very ſoundeſt, and the Fruit found to be more delicate than uſually the ſame kind from a perfect and more entire Stock.

Except ſome former caſe requires it, leave not your *Graffs* above four, five, or (at moſt) ſix Inches of length above the *Stock*; for by the length it draws more feebly, and is more expos'd to the ſhocks of the *Wind*, or hurt by the *Birds*; and you ſhall frequently perceive the Summities and Tops of ſuch young *Graffs* to be mortified and die.

The

The *Genet-moyle* is commonly propagated by cutting off the *Branch* a little below a *Burr-knot*, and ſetting it without any more ceremony; but if they be alſo *graffed* firſt as they grow on the *Tree*, and when they have *covered* the *head*, cut off below the *Burr*, and ſet, it is far better. In this ſeparation cut a little beneath the *Burr*, and *peel* off, or *prick* the *Bark* almoſt to the *Knot*. Thus alſo if the *Branch* have more *Knots* than *one*, you may *graff*, and *cut off* yearly, till within half a foot of the very *Stem*, which you may *graff* likewiſe, and ſo let ſtand.

Now for encouragement in tranſporting *Graffs* at great diſtance, we find that with little care (their Tops uncut and unbruis'd) they will hold good, and may ſupport the Tranſportation by *Sea* or *Land* from *October* or *November* to the very end of *March*: *See* Sir *H. Plott*'s *Offers*, Paragr. 75. To which may be added, That if the *Graff* receives no hurt by lying in the *Stock* expos'd to all Rain, Dews, and ſeverities of *Winter* Froſts, from *December* to *Spring*, (as has been experimentally noted;) then (by a ſtronger preſumption) in oiled, or rather waxen Leather, it may undoubtedly eſcape. Some preſcribe, That the *Ends* ſhall be ſtuck in a *Turnip*: And many excellent *Graffers* (*Gentlemen*, ſome of very good credit) have aſſured us, That the *Graffs* which ſeemed withered, and fit to be caſt away, have proved the beſt when try'd. Thus in honeſt *Barnaby Googes* noble *Heresbachius* you will find it commended to gather your *Cions* in the *Wane* of the *Moon*, at leaſt ten days before you *graff* them; and *Conſtantine* gives this reaſon for it, That the *Graff* a little wither'd, and thirſty, may be the better receiv'd of the *Stock*. I know ſome who keep them in *Earth*, from the end of *October* till the *Spring*, and will hardly uſe them before. There are alſo other Inducemeuts for this practice, as *Simon Harwood*, Page 4. has ſhew'd us; but none beyond our own *Experience*, who have known *Graffs* gather'd in *December* thrive and do perfectly well.

The beſt Expedient to *convey* Graffs, is, to ſtick the *cut ends* in *Clay*, envelop'd with a *Clout* to preſerve it from falling off; and to wrap the other part of the Twigs in dry *Hay* or *Straw-bands*, which will ſecure them both from the Winds, Galling, and other Injuries in Tranſportation: Nay, I have known them ſent many *hundred Miles* from *beyond* the *Seas* accommodated to an ordinary Letter, and though ſomewhat ſhort, and with very few *Buds*, yet with excellent ſucceſs; and if this courſe were more univerſally conſider'd, we might be furniſh'd with many great *Curioſities* with little difficulty or charge.

CHAP. IV.

Of Variety *and* Improvements.

IF any Man would have *Variety* of unexpected and unknown *Apples* and *Pears*, for the Improvement of *Cider*, or *Palate-fruit*, there is more hope from *Kernels* rais'd in the *Nurſery* (as has already been directed) than from ſuch tryals of *graffings* as we have yet ſeen in preſent uſe.

But

But if we would recover the Patience and the Sedulity of the *Antients* (of which ſome brief Account will follow) or liſten to ſome unuſual Propoſals, then may we undertake for ſome Variety by *Inſitions*.

To delude none with Promiſes, we do much rather recommend the Diligence of enquiring from all *Countries* the beſt *Graffs* of ſuch *Fruits* as are already found excellent for the Purpoſe we deſign: As from the *Turgovians*, for that Pear of which Dr. *Pell* gives ſo good and weighty Informations; and of which I had preſented me ſome *Graffs*, together with a Taſte of the moſt ſuperlative *Perry* the *World* certainly produces: both which were brought near 800 Miles, without ſuffering the leaſt Diminution of Excellency, by my worthy *Friend* Mr. *Hake*, a *Member* of the *Royal Society*, in the Year 1666, and taſting as high and as rich as ever to the *preſent* Year I am writing this *Paragraph*; when with this *Regale* I entertained the late Earl of *Leiceſter*, (then Lord *Liſle*) Sir *Kenelm Digby*, and Sir *John Denham*, (Perſons of great Note, and critical Palate) who honour'd my poor Habitation at *Sayes-Court* near *Deptford* with a Viſit, and were ſurpriz'd with the Richneſs of the Liquor.

But as ſome Sorts are to be enquired after for the *Palate* and the *Table*, ſo 'tis now our main Buſineſs to ſearch after ſuch as are excellent for their *Liquor*, either as more *pleaſant*, more *winy*, or more *laſting*; of which ſort the *Bosbury bare-land* Pear excels. The *Red-ſtrake*, *Bromebury-Crab*, and that other much celebrated *Wilding* called the *Oaken-pin*, as the beſt for *Cider*; though for ſufficient Reaſons we do yet prefer the *Red-ſtrake*, to oblige the *Emulation* of other *Countries*, till they find out a *Fruit* which ſhall excel it, and which we do moſt heartily wiſh.

But to purſue the Diligence of the *Antients*, we direct the Eye to a general Expedient for all kind of *Varieties* imaginable, and which we hold far better than to preſent the World with a *Liſt* of the Particulars either known or experimented: For who indeed but a *Fool* will dare to tell *Wonders* in this ſevere *Age*, and upon an *Argument* which is ſo environ'd with *Impoſture* in moſt *Writers* old or new? Much leſs pretend to *Experiments*, which may fail to ſucceed by default of an unhappy *Occaſion*, when the *Concluſion* muſt be, *Penes Authorem ſit fides*.

And truly Men receive no ſmall Diſcouragement from the ugly Affronts of *Clowns*, and leſs cultivated Perſons, who laugh and ſcorn at every thing which is above their Underſtanding. For Example: *I knew a Man*, (writes Dr. *Beale* to me) *and he a moſt diligent* Planter *and* Graffer, *who for thirty or forty Years made innumerable* Eſſays *to produce ſome* Change *of an* Apple *by graffing: It ſeems he was ambitious to leave his* Name *on ſuch a* Fruit, *if he could have obtained it, but always fail'd; for he perpetually made his* Trials *upon* Crab-ſtocks, *or ſuch (at leaſt) as did not greatly differ from the* Kind; *and he ever found that the* Graff *would* predominate. And how infinitely ſuch Men having loſt their own Aims will deſpiſe better *Advice*, we leave to Obſervation.

However, let us add, That where nothing is more facile than to raiſe new kinds of *Apples* (*in infinitum*) from *Kernels*; yet in that *Apple-Country* (ſo much addicted to *Orchards*) we could never encounter more than *two* or *three* Perſons that did believe it: but in other Places we meet with many that, on the other ſide, repute *Wildings*, or (as

they call them) *Kernel-Fruit*, at all adventure, and without choice, to be the very beſt of *Cider-fruit*, and to make the moſt noble Liquor. So much does the common Judgment differ in ſeveral *Countries*, tho' at no conſiderable Diſtance, even in Matters of viſible *Fact*, and *Epidemical* Experience.

It has been ſoberly affirmed, That by *graffing* any *White Apple* upon an *Elm*, it changes the *Apple*, and particularly to a *red* Colour: I have a Direction where we may be Eye-witneſſes of the Proof; whatever the Truth of it be, we are not over-haſtily to erect *Hercules*'s *Pillars*, but rather to encourage the *Experiment*.

To gratify yet the *Ingenious*, inſtruct others, and emancipate us from all theſe *Baſtinado Clowns*, we are furniſh'd with many *Arguments* and Proofs to aſſure a good Succeſs, at leaſt for Variety and Change, if not for infinite Choice: Two or three antient *References* being duly premis'd; namely,

1. That 'tis in vain to expect Change of *Apples* from *graffing* upon differing *Stocks* of *Crabs* or *Apples*.

2. In vain alſo are we to look for a kind Tree from a very much differing *Stock*; as an altered *Pear* to grow kindly on a *Crab* or *Apple-ſtock*, *& contra*. There go about indeed ſome *Jugglings*, but we diſdain to name them.

It is one thing to find the kindeſt *Stock* for the Improvement of any Fruit; as the *Crab-ſtock* for the delicate Apple; the *Wild* or *Black Cherry-ſtock*, for the Graffs of the faireſt Cherries; the largeſt Vine, (whoſe Root makes beſt ſhift for Relief) to accept the *Graff* of the more delicate *Vine*; the *White Pear-Plumb Stock*, for the *Abricot*, &c. And another thing it is to ſeek the *Stock* which begets the Wonder, Variety, and that ſame tranſcendent and particular Excellency we enquire after: For this muſt be at more remote Diſtance; and we offer from the Ancients to ſhew how it may be at any Diſtance whatſoever: But the whole Expedient ſeems to be hinted at by Sir *H. Plat*, Page 72. where he affirms, That *if two Trees grow together, that be apt to be graffed one into another, then let one Branch into another, workmanly joining Sap to Sap.* This our *Gardiners* call *graffing* by *Approach*, and is explicated at large by *Columella*.

But in this expreſs *Rule* he is too narrow for our Purpoſe, and far ſhort of old Experience; as we find in *Paragr.* 63. where he affirms, *We may not graff a contrary Fruit thereon.* Againſt *this* we urge, That any contrary *Fruit* may be adventured, and any Fruit upon any fruitleſs *Stock* growing in Propinquity in the ſame *Nurſery*; as it is not only affirm'd, but ſeriouſly undertaken, and experimentally proved by the ſober *Columella*, in ſeveral of his Treatiſes: Turn to the 11th Chapter of his 5th Book, (*Stephens*'s Edition) *Sed cum antiqui negaverint poſſe omne genus ſurculorum in omnem Arborem inſeri, & illam quaſi finitionem, qua nos paulo ante uſi ſumus, veluti quandam legem ſanxerint, eos tantum ſurculos poſſe coaleſcere, qui ſint cortice, ac libro, & fructu conſimiles iis arboribus quibus inſeruntur, exiſtimavimus errorem hujus opinionis diſcutiendum, tradendamque poſteris rationem, qua poſſit omne genus ſurculi omni generi Arboris inſeri.* And the Example follows in a *Graff* of an *Olive* into a *Fig-ſtock* by *Approach*, (as we call it) which he alſo repeats in the 27th Chapter of his Book *De Arboribus*, without altering a Syllable. But poſſibly at this Check at the *Antients* he might aim at old *Varro*, whom we find

threatning no leſs than *Thunderbolts* and *Blaſts* to thoſe who ſhould attempt theſe ſtrange *Marriages*, and did not ſort the *Graff* with the *Tree*; conſult *lib.* 1. *cap.* 40. And yet you may ſee this *Art* aſſum'd by *Columella* for his own Invention (1500 Years ſince) to be no news to *Varro* 200 Years older; where he goes on, *Eſt altera ſpecies ex arbore in arborem inſerendi nuper animadverſa in arboribus propinquis*, &c. Though here again we may queſtion our Maſters *nuper animadverſa* too; ſince before he was born *Cato* relates it as uſual to *graff* Vines in the manner by them preſcrib'd, *cap.* 41. *Tertia inſitio eſt: Terebra vitem quam inſeres*, &c. Which by the way makes us admire how the witty *Walchius* in his Diſcourſe *De vitibus fructuariis*, Page 265. could recount the *graffing* of *Vines* amongſt the Wonders of *Modern Inventions*.

But it ſeems *Varro* and his *Contemporaries* did extend the Practice beyond *Cato*; and *Columella* proceeded further than *Varro*, even to all ſorts of Trees, however differing in Nature, Quality, Bark, or Seaſon: And then *Palladius* aſſumes the reſult, and gives us the particulars of the ſucceſs in his *Poem*, *De Inſitionibus*. And to theſe four as in chief (no fantaſtical or counterfeit perſons) we refer the Induſtrious.

But be pleas'd to take this note alſo: As ſoon as your *Graff* hath attained to a *ſecond*, or at fartheſt a *third* Years growth, take it off the *Stock*, and then graff it upon a *Stock* of a more *natural* kind: For in our own *Tryals* we have found a *Graff* proſper the ſecond Year exceeding well; yet the third the whole Growth at once blaſted quite to the very *Stock*, as if *Varro*'s Augurs had ſaid the word.

To this add, the making uſe of ſuch *Stocks* as in this Experiment may contribute ſome ſpecial aid to ſeveral kinds of human *Infirmities*: As, ſuppoſe the *Birch* Tree for the *Stone*, the *Elm* for *Fevers*, &c. For 'tis evident, that by ſuch *Inſitions*, the *Branch* may convert the *Sap* of the *Root* even of another *ſpecies* into its own nature, and alter all its *properties*; though in *ſome* they *domineer*, as the *Branch* of the *Apple* in *Rhamnus*, or *Mezerea*, acquires a *Purgative* quality. And by theſe means why may not the *Fruit* by effectual *Marriages* be rendred *Cordial*, *Aſtringent*, *Purgative*, *Sudorific*, *Soporiferous*, and even *Deleterious* and Mortal? But this we only hint.

Moreover, To *graff* rather the *Wilding*, or *Crab*, than the *Pippin*, becauſe the *Wilding* is the more natural; and *Nature* does more delight in *Progreſs*, than to be *Retrograde* and go backwards.

I ſhould alſo expect far more advance from a more *pungent Sap*, than from *inſipid*; as generally we ſee the beſt and vigorous *Juices* to ſalute our *Palats* with a more agreeable *Piquancy* and Tartneſs; for ſo we find the reliſh of the *Stocking-Apple*, *Golden Pippin*, *Pearmain*, *Eliot*, *Harvy*, and all (both *Ruſſettings* and *Greenings*) be more *poignant* than of others.

And here we note from *Palladius*, That the *Antients* had the ſucceſs which we all, and particularly Sir *H. Platt*, does ſo frequently deny, as in the particular of *graffing* the *Apple* on the *Pear*, *& contra*. Let us hear him *de Pomo*:

> The *Graffed-Crab* its buſhy Head does rear,
> Much *meliorating* the inſerted *Pear*:
> Its ſelf to leave its *Wildneſs* does invite,
> And in a *Nobler Iſſue* to delight.

Inſita

Inſita proceris pergit concreſcere ramis,
Et ſociam mutat malus amica Pyrum:
Séque feros ſylvis hortatur linquere mores,
Et partu gaudet nobiliore frui.
PALLAD. de Inſitionib. *lib.* xiv.

But poſſibly *Palladius* aſſum'd this *Poetical* Expreſſion, upon preſumption that no Man in his days durſt degrade the moſt excellent *Quince* to ſupport the *Cyon* of another *Fruit*, which then muſt be of leſs eſteem; but we by our *Luxury* have found the ſucceſs.

And we have good Argument to believe, that *Virgil*, and *Columella*, in ſeveral of their wonderful Relations of theſe kinds of mixture, (which but for the prolixity we might now recite) did not ſo far affect *Wonders* as to deſert the Truth.

You may alſo obſerve, That as well the *French Gardiner*, and our *Modern Planters*, have found the ſame benefit from the *Stock* of the *Quince*, as old *Palladius* did, it ſeems, acknowledge; yet (as he conceiv'd) more hoſpitable ſtill with its own *Kindred*; and that,

Though the *Quince-ſtock* admit all other *Fruit*,
Its *Cyon* with no other *Stock* will ſuit:
Scorning the *Bark* of Foreign Trees, does know
Such lovely *Fruit* on no mean *Stem* can grow;
But the *Quince-graff* to the *Quince-ſtock* is join'd,
Contented only to improve its kind.

Cum præſtet cunctis ſe fulva cydonia pomis,
Alterius nullo creditur hoſpitio.
Roboris externi librum aſpernata ſuperbit,
Scit tantum nullo creſcere poſſe decus:
Sed propriis pandens cognata cubilia ramis,
Stat, contenta ſuum nobilitare bonum.
PALLAD. de Malo Cidonio.

Laſtly, We did by unexpected chance find the facility of *graffing* the very youngeſt *Stocks*, even of one Years growth, by the *Root*: At a ſecond removal of the *Stocks*, (being then of two Years growth) we obſerved ſome *Roots* ſo faſt cloſed together into one, as not to be divorced: Hereupon we concluded, If Caſualty, or Negligence, chance of Spade, or oppreſſion of Neighbourhood did this, by *Art* it might be done more effectually, and poſſibly to ſome deſirable purpoſe; for then the *Stock* was more apt to receive a maſtering *Impreſſion*; and any *Garden* Plant whatſoever might by this *proceſs* interchange and mingle their *Roots*. But this can extend no farther than the *Stock* may prevail with the *Graff*.

And thus we have preſented our diligent *Cideriſt* with what Obſervations and Arguments of Encouragement, grounded on frequent *Experience*, we have receiv'd from our moſt ingenious *Correſpondents*, eſpecially the Learned and truly Candid Dr. *Beale*, in whoſe *Perſon* we have ſo long entertain'd you: And to theſe we could add ſundry others, were it not now time (whilſt we diſcourſe of *Poſſibilities*) to conclude with ſomething *certain*, and to ſpeak of what we have.

For the kinds then of *Cider-Apples* in being; *Gloceſterſhire* affects the *Bromsbury-Crab*; it affords a ſmart, winy *Liquor*, and is peculiarly

peculiarly hardy, but not ſo proper for a cold and late-bearing *Climate*, it being not *ripe* in *hot Land* till the end of *Autumn*, nor fit to be ground for *Cider* till *Chriſtmas*, lying ſo long in Heaps and Preparation.

It is in the ſame *Shire* that they likewiſe much eſteem of the *white* and *red Muſt-Apple*, the ſweeteſt as well as ſowreſt *Pippin*, and the *Harvy-Apple*, which (being boil'd) ſome prefer to the very beſt of all *Ciders*; though from any Experience we have yet ſeen, we cannot recommend it, and it will want more particular and infallible *Directions*, before we can be reconciled to the *Adventure*, which we have obſerved ſo frequently to miſcarry.

But about *London*, and the more *Southern Tracts*, the *Pippin*, and eſpecially the *Golden*, is eſteemed for the making of the moſt delicious of that *Liquor*, moſt wholſome, and moſt reſtorative; and indeed it may (in my poor Judgment) challenge thoſe *Perfections* with very good Reaſon.

By others the *Pearmain* alone is thought to come in Competition with the beſt; but, ſay they, the *Cider* is for the moſt part found of the weakeſt, unleſs encourag'd with ſome agreeable *Pippin* to inſpirit it; whereas this is to be taken according to the Conſtitution of the *Fruit*; for even *Pippins* do differ as much from *Pippins* in Taſte and Liquor, as the *Kind* and the *Soil* diſpoſe them; nay, though of the ſame *Species*; ſo as the *Cider* of the *Pearmain* (though likewiſe very different) does not ſeldom exceed it in that Briskneſs which others attribute to the *Pippin*, which is for the moſt part more ſmooth, and leſs *poinant:* I conceive a good way of extracting the *Spirits* of theſe *Fruits*, might prove a likely *Criterion* to ground our Judgments on in all theſe Niceties; whilſt by the way, we may note, that of all *Apples* that bear one general Name, the *Pippin* ſeems the moſt to differ, and the *Cider* from the genuine *Cider-Fruit*, keeps neareſt to the ſame Strength and Reliſh.

Some commend the *Fox-whelp*; and the *Gennet-moyle* was once preferr'd to the very *Red-ſtrake*, and before the *Bromsbury-Crab*; but upon more mature Conſideration, the very *Criticks* themſelves now *recant*, as being too effeminate and ſoft for a *judicious* Palate.

The *Red-ſtrake* then amongſt theſe accurate *Taſters* hath obtained the abſolute preeminence of all other *Cider-fruit*, eſpecially in *Hereford-ſhire*, as being the richeſt and moſt *vinous* Liquor, and now with the more earneſtneſs commended to our Practice, for its celerity in becoming an *Orchard*, being ordinarily as full of *Fruit* at ten Years growth as other Trees are at twenty; the *Pippin* or *Pear-main* at thirty: And laſtly, from that no contemptible Quality, that though the Smiles of it entice even on the *Tree*, as being indeed better than moſt other *Table-fruits* whilſt hanging, yet it needs no *Priapus* for Protector, ſince (as beautiful as 'tis) it has no ſuch Temptation to the *Taſte*, till it be either *baked*, or converted into *Cider*. The ſame may be affirmed alſo of the *Bromsbury-Crab*, *Bearland Pear*, and many other *Wildings*, who are no leſs at their *Self-defence*; yet the *Gennet-Moyle* at due *Maturity*, has both a gentle, and agreeable Reliſh; their unagreeableneſs to the *Palate* (as elſewhere noted) proceeding only from the Separation the *Juice* makes from the *Pulp*, which even *Children* do remedy by *contuſing* them on their ſharpned Elbows; which (if throughly weigh'd) ſeems to *diſpute*, if not *overthrow* ſome *Hypotheſes* of *Fermentation*.

See Aphor. 42. 45. 37.

In Sum, the *Red-ſtrake* will at three Years *graffing* give you fair Hopes, and laſt almoſt an hundred Years; if from ſundry Mens *Experience* of more than Sixty Years, we may divine, and that it agree with the *Soil*. And the *Gennet-Moyles* haſten to an *Orchard* for *Cider*, without Trouble of *Art* or *Graffing*: But Note, that this *Tree* is very apt to contract a *Bur-knot* near its Trunk, where it begins to divide; and being cut off under that *Boſs*, commonly grows (if ſo ſet) and becomes ſpeedily a Tree, except it encounter an extraordinary dry *Summer* the firſt Year to give it Check. And though the Knack of *graffing* be ſo obvious, yet this more appearing Facility does pleaſe the lazy *Clowns*, that in ſome places they neither have nor deſire any other *Orchards*; and how this Humour prevails, you may perceive by the haſty Progreſs of our *Kentiſh Codlin* in moſt Parts of *England*. But this haſty Growth and Maturity of the *Tree* is by another *Inſtance* confirm'd to us from that worthy *Gentleman* Mr. *Blount* of *Orleton*, who writes me word, that ſome of the rejected Spray, or Prunings of the *Gennet-Moyle*, taken by Chance to *rice* a Plot of *Peaſe*, (though ſtuck into the Earth but at *April*) put forth Root, grew, bloſſom'd, and bore *Apples* the ſame Year.

See C. Taylor's *Diſcourſe of* Cider.

But to advance again our *Red-ſtrake*, even above the *Pippin*, and the reſt (beſides the celerity of the Improvement and conſtant Burthen) conſider we the moſt incredible Product, ſince we may expect from each *Apple* more than double the Quantity; ſo as in the ſame *Orchard*, under the ſame *Culture*, thirty *Red-ſtrake* Trees ſhall at ten Years *graffing* yield more *Cider* than a *hundred* of thoſe *Pippins*, and ſurmount them in Proportion during their Period at leaſt ſixty or ſeventy Years: So that granting the *Cider* of the *Golden Pippin* ſhould excel, (which with ſome is precarious) yet 'tis in no wiſe proper for a *Cider-Orchard*, according to our general Deſign, not by half ſo *ſoon bearing*, nor ſo *conſtantly*, nor in that *Quantity*, nor *Fulneſs* or *Security*; for as 'tis no tall Tree, ſo is it leſs expos'd to *Blaſts* and the like Inconveniencies; beſides it is a good *Kitchin-fruit* for the Seaſon it continues.

Concerning *Perry*, the *Horſe-Pear*, and *Bear-land Pear* are reputed of the beſt, as bearing almoſt their Weight of ſpriteful and *vinous* Liquor. The experienced prefer the *tawny* or *ruddy* Sort, as the Colour of all other moſt proper for *Perry:* They will grow in *common Fields*, *gravelly*, *wild* and *ſtony* Ground, to that largeneſs as *one* only *Tree* has been uſually known to make three or four *Hogſheads:* That of *Bosberry*, and ſome others, are ſo tart and harſh, that there is nothing more ſafe from Plunder, when even a *Swine* will not take them in his Mouth. But thus likewiſe would the Abundance preſerve theſe Fruits, as we ſee it does in *Normandy*.

Aph. 43.
Aph. 34.

Some have reckon'd the *Codlin* among the *Cider-fruits*; it is a Tree of Conſort, propagated by *Cuttings*, improv'd by *Graffing*, continable to *Cont'eſpalieres* or *Hedges*, but more plentifully bearing when more at Liberty.

CHAP.

CHAP. V.

Of the Place *and* Order.

WE do ſeriouſly prefer a very wild *Orchard*, as mainly intended for the publick Utility, and to our *purpoſe* of obliging the *People*, as with a ſpeedy *Plantation* yielding Store for *Cider*: Upon this it is that we do ſo frequently inculcate how well they thrive upon *Arable*, whilſt the continuing it ſo accelerates the Growth in almoſt half the Time: And if the *Arable* can be ſo levell'd (as commonly we ſee it for *Barley* Land) then without Detriment it may aſſume the Ornament of *Cyrus*, and flouriſh in the *Quincunx*.

If it be *ſhallow* Land, or muſt be rais'd with high *Ridges*, then 'tis neceſſary to have more regard of planting on the *tops* of thoſe Eminencies, and to excuſe the unavoidable Breach of the *Decuſſis*, as my Lord *Verulam* excuſeth the Defect of our human *Fancies* in the *Conſtellations*, which obey the *Omnipotent* Order rather than ours: Add to this the Rigor of the *Royal Society*, which approves more of *Plainneſs* and *Uſefulneſs*, than of *Niceneſs* and *Curioſity*; whilſt many putting themſelves to the vaſt Charge of levelling their Grounds, oftentimes make them but the worſe; ſince where the Places are full of gaſtly Inequalities, there may be planted ſome ſorts of *Cider-fruit*, which is apt by the great Burden to be preſs'd down to the Ground, and there (whilſt it hides *Irregularities*) to bear much better, and abundantly beyond Belief; for ſo have been ſeen many ſuch recumbent *Pear-Trees* bear each of them *two*, *three*, yea, even to *ſix* or more *Hogſheads* yearly.

And for this *Cider*, whilſt we prefer ſome ſorts of *Wildings* which do not tempt the *Palate of a Thief*, by the Caution we ſhall not provoke any Man to repent his Charge from the Neceſſity of richer and more reſerv'd *Encloſures*; though we have frequently ſeen divers *Orchards* ſucceſsfully planted on very poor *Arable*, and even in ſtony *Glebe*, *Gravel* and *Clay*, and that pretty high on the Sides and declivities of *Hills*, where it only bears very ſhort Graſs, like to the moſt ordinary *Common*, not worth the Charge of *Tillage*: And yet even there the *Tenants* and *Confiners* ſometimes encloſe it for the *Fruit*, and find their Reward, though not equally to ſuch *Orchards* as are planted on better Ground, and in the Vallies. Hence we ſuggeſt, that if there be no *Statute* for it, 'twere to be wiſhed there were a *Law* which ſhould allow *Endeavours* of this Nature out of the *common Field*, to encloſe for theſe *Encouragements*, ſince both the *Publick* and the *Poor* (whatever the Clamour is) are advantaged by ſuch *Encloſures*, as *Tuſſer* in his old Rhimes, and all indifferent Obſervers apprehend with good Reaſon.

True indeed it is, that all Land is not fit for *Orcharding*, ſo as even where to form juſt *Encloſures* being either too *ſhallow* and *dry*, or too *wet* and *ſtarving*; *But this* (ſaith the judicious Mr. *Buckland*) *we may aver*, *That there are few* Pariſhes *or* Hamlets *in* England, *where there are not ſome fat and deep* Headlands *capable of* Rows *of* Trees; *and that* (*as hath been ſaid*) *the raiſed* Banks *of all* Incloſures *generally by the Advantage of the Depth*, *Fatneſs*, *and Health*

Health of their Mould, yield ready opportunity for planting; (*yea, and in many* Countries *Multitudes of* Crab-ſtocks *fit to be* graffed;) *in which latter* (ſaith he) *I have frequently obſerved very goodly Fruit-bearing Trees, when in the ſame Soil* Trees *in* Orchards *have been poor and worth nothing.* To conclude,

If the Soil be very bad and unkind, any other *Fruit* (which it may more freely yield without requiring much depth, and leſs *Sun*) may be planted inſtead of *Apples.* In the mean time, for thoſe who ſhould rather chuſe to confine their *Cider Plantation* into a narrower Circle, it has been calculated, That one *Acre* of Ground may contain an hundred *Red-ſtrakes* at Twenty *Foot* interval; which (ſuppoſing to have coſt *Five Pounds* to perfect the *Orchard*) may well yield the Owner an *Hundred Buſhels*, one Tree with another, at ſeven Years growth; which at but *Six-pence per Buſhel* amounting to *Fifty Shillings*, and the *Herbage* twenty, ought to be no diſcouragement to the Planter; ſince by the eighth or ninth Year he may expect at the leaſt *three hundred Buſhels*, and in fruitful Years *five hundred Buſhels*, worth *Eighteen-pence* the *Buſhel*; an extraordinary Improvement, as will appear upon calculation.

CHAP. VI.

Of Tranſplanting, *and* Diſtance.

THE moſt proper Seaſon for *Tranſplanting* is before the hard Froſts of *Winter* ſurprize you, and that is a competent while before *Chriſtmas:* And the main point is, to ſee that the *Roots* be larger than the *Head*; and the more ways that extends, the better and firmer.

If the *Stock* ſeems able to ſtand on its own three or four Legs, (as we may call 'em) and then after ſettlement ſome Stones be heaped or laid about it, as it were gently wedging it faſt, and ſafe from Winds, (which *Stones* may after the ſecond or third Year be removed) it will ſalve from the main danger: For if the *Roots* be much ſhaken the firſt *Spring*, it will hardly recover it.

You may tranſplant a *Fruit-Tree* almoſt at any tolerable *Seaſon* of the *Year*, eſpecially if you apprehend it may be ſpent before you have finiſh'd your work, having many to remove: Thus, let your *Trees* be taken up about *Allhallontide*, (or as ſoon as the *Leaf* begins to fall;) then having trimm'd and quicken'd the *Roots*, ſet them in a *Pit*, forty, fifty, or a hundred together, yet ſo as they may be covered with Mould, and kept very freſh: By the *Spring* they will be found well cured of their *Wounds*, and ſo ready to ſtrike *root* and put forth, that being *Tranſplanted* where they are to ſtand, they will take ſuddenly, and ſeldom fail; whereas being thus cut at *Spring* they recover with greater hazard. I allow the general Opinion is, the early tranſplanting of moſt Trees, *Fruit* or *Foreſt*. Let us hear that noble Lover of theſe uſeful Diverſions, Mr. *Reede* of *Lingwardin* in *Herefordſhire*, has found of ſo great ſucceſs, by deferring the Work about the middle of *February*, however mild the Seaſon prove; finding by experience, that the rigid and ſevere Cold of Winter, retards the motion and thriving

a great deal more than the Drowth of the moſt parching Summer, and that more die and languiſh with that Fever, than ſtarve with Cold in Winter: Since the dryeſt Spring or hotteſt Summer may be ſupply'd with diſcreet Watering, Refreſhing, and Shade; whilſt the otherwiſe ſudden irradicating of Trees for an early Tranſplantation, expoſe them to a tedious and uncertain Tryal how they will bear it; all haſty alterations in Clime and Air being as dangerous in Vegetables as Animals: This Gentleman, therefore, it ſeems, prunes, dreſſes, and fits ſuch Trees as he deſigns to remove in dead of Winter, in order to a later Seaſon, as in what we have ſaid of the Pit, whereby they preſerve their Vigor; and in this Operation he favours the large and moſt ſpreading Roots, which others cut them ſhort, to furniſh new ones; which therefore is the better, we leave to experience, and whether ſo applicable to *Foreſters* as the *Orchard*: But this indeed belongs to the Chapter of * *pruning* rather: In the mean while, what Trees and Plants ſhould ſtand without removing, a *Gardiner* ſhould learn, and even get by heart, the excellent Rules given by Mr. *de la Quinteny*, *Part* VI. *Cap.* VII. and from Page 61 to 186. * Cap. VIII.

The very *Roots* of *Trees* planted in the Ground, and buried within a quarter of an Inch, or little more, of the level of the *Bed*, will ſprout and grow to be very good *Stocks*. This and the other being Experiments of our own, we thought convenient to mention.

By the oft removal of a *Wild-ſtock*, cutting the ends of the *Roots*, and diſ-branching ſomewhat of the *Head* at every *change* of *place*, it will greatly abate of its natural *Wildneſs*, and in time bring forth more *civil* and *ingenuous* Fruit; Thus *Gilly-flowers* do (by oft removals, and at *Full-Moon* eſpecially) increaſe and multiply the Leaves.

Plant not too *deep*; for the *over-turf* is always richer than the *next* Mould. How material it is to keep the *coaſt* or ſide of the *Stock*, as well in *Fruit-Trees* as in *Foreſt*, we have ſufficiently diſcuſs'd; nor is the Negative to be prov'd. See *Aphor.* 35.

For the *diſtance* in *Fields*, they may be ſet from *thirty two* to *ſixty* Foot, ſo as not to hinder the *Plough*, nor the benefit of Manure and Soil; but in Hedge-rows as much nearer as you pleaſe, Sun and Air conſider'd.

CHAP. VII.

Of the Fencing.

SEeing a *Cider-Orchard* is but a wild Plantation, beſt in *Arable* well enclos'd from *Beaſts*, and yet better on the Tops, Ridges, and natural Inequalities, (though with ſome loſs of Order, as we ſhew'd) one of the greateſt Diſcouragements is the *preſerving* of our *Trees* being planted, the raiſing of them ſo familiar.

We have in our *Silva* treated in particular of this, as of one of the moſt material *Obſtacles*; wherein yet we did purpoſely omit one *Expedient*, which came then to our hands from the very Induſtrions Mr. *Buckland* to the learned Dr. *Beal:* You ſhall have it in his own Words.

This of Fencing *ſingle* Trees *uſeth to be done by* Rails *at great charges*; *or by* Hedges and Buſhes, *which every other Year muſt be renew'd, and the* Materials *not to be had in all places neither. I therefore prefer and commend to you the enſuing form of* Planting *and* Fencing, *which is more cheap and eaſy, and which hath other* Advantages *in it, and not commonly known. I never ſaw it but* once, *and that imperfectly performed*; *but have practis'd it* my ſelf *with* Succeſs: *Take it thus.*

Set your Tree *on the* Green-ſwarth, *or five or ſix* Inches *under it if the* Soil *be very healthy*; *if* moiſt *or* weeping, *half a foot above it*; *then cut a* Trench *round that* Tree, *two foot or more in the* clear *from it*: *Lay a rank of the* Turfs, *with the* Graſs *outward, upon the* inner *ſide of the* Trench *towards your* Plant, *and then a* ſecond *rank upon the former, and ſo a* third, *and* fourth, *all orderly plac'd,* (*as in a* Fortification) *and leaning towards the* Tree, *after the form of a* Pyramid, *or larger* Hop-hill: *Always as you place a row of* Turfs *in compaſs, you muſt fill up the* inner *part of the* Circle *with the looſe Earth of the ſecond* Spit *which you dig out of your* Trench, *and which is to be two foot and half wide, or more, as you deſire to mount the* Hillock, *which by this means you will have rais'd about your* Plant *near three foot in height. At the* Point *it needs not be above two foot or eighteen Inches diameter, where you may leave the* Earth *in form of a* Diſh, *to convey the* Rain *towards the* Body *of the Tree*; *and upon the top of this* Hillock *prick up five or ſix ſmall* Briars *or* Thorns, *binding them lightly to the Body of the* Plant, *and you have finiſh'd the Work.*

The Commodities *of this kind of* Planting *are,*

Firſt, *Neither* Swine, *nor* Sheep, *nor any other ſort of* Cattle *can annoy your* Trees.

Secondly, *You may adventure to ſet the ſmaller* Plants, *being thus raiſed and ſecur'd from the reach of* Cattle.

Thirdly, *Your* Trees *faſten in the* Hillock *againſt violence of* Winds, *without* Stakes *to fret and* canker *them.*

Fourthly, *If the Soil be* wet, *it is hereby made* healthy.

Fifthly, *If very* dry, *the* Hillock *defends from the outward* Heat.

Sixthly, *It prevents the* Couch-graſs, *which for the* firſt *Years inſenſibly robs moſt Plants in ſandy Grounds apt to* graze. And,

Laſtly, *The* Grazing-Bank *will recompence the niggardly* Farmer *for the waſte of his* Ditch, *which otherwiſe he will ſorely bethink.*

In the ſecond *or* third *Year,* (*by what time your* Roots *ſpread*) *the* Trench, *if the* Ground *be moiſt, or* Seaſons *wet, will be near fill'd up again by the treading of* Cattle; *for it need not be cleanſed*; *but then you muſt renew your* Thorns: *Yet if the* Planter *be curious, I ſhould adviſe a caſting of ſome ſmall quantity of* rich Mould *into the bottom of the* Trench *the ſecond Year, which may improve the growth, and invite the* Roots *to ſpread.*

In this manner of Planting, *where the* Soil *is not rich, the exact* Planter *ſhould add a little quantity to each Root of Earth from a frequented* High-way, *or* Yard *where* Cattle *are kept*; *one* Load *will ſuffice for ſix or ſeven* Trees; *this being much more proper than* Rotten Soil *or* Looſe Earth; *the fat Mould beſt agreeing with the* Apple-Tree.

The broader and deeper your Ditch *is, the higher will be your* Bank, *and the ſecurer your* Fence; *but then you muſt add ſome good Earth in the ſecond Year, as before.*

I muſt ſubjoin, That only Trees *of an* Upright Growth *be thus planted in* Open Grounds; *becauſe ſpreading of low growing* Trees *will be ſtill within reach of* Cattle *as they increaſe: Nor have I met with any Inconvenience in this kind of* Tranſplanting (*which is applicable to all ſorts of* Trees) *but that the* Mole *and the* Ant *may find ready Entertainment the firſt Year, and ſometime impair a weak rooted* Plant; *otherwiſe it rarely miſcarries. In ſum,*

This manner of Fencing *is ſoon executed by an indifferent* Workman, *who will eaſily ſet and guard* ſix Trees *in a* Winter *Day.* Thus far Mr. *Buckland.* To which we ſhall only add, That thoſe which are planted in the *Hedge-rows* need none of theſe Defences; for (I am told) in *Herefordſhire*, in the Plantations of their *Quickſets*, or any other, all Men did ſo *ſuperſtitiouſly* place a *Crab-ſtock* at every *twenty foot* diſtance, as if they had been under ſome rigorous *Statute* requiring it; and I am of Opinion, that 'twere better to be content with *Fruit* in the bordering *Mounds*, than to be at all this trouble to raiſe *Tumps*, or temporary Banks in the midſt of an *Incloſure*; or if *Pears* will thrive in the Plain of the *Orchard*, as we frequently ſee them, (where neither *Apple* or *Fruit* could in appearance be expected) then *Crabs*, which may be raiſed on the *Mounds*, will kindly mix the *Liquor* into very good *Beverage*. And now we mention *Crabs*, I cannot but approve what the Reverend Mr. *Walker* of *Great-Billing* near *Northampton* ſuggeſts in an obliging Letter to me, concerning the fencing of *Fruit-Trees* planted abroad in the Fields; namely, the ſetting about each Tree three or four *Crab-ſtocks* or *White-thorn*, well rooted, and about four Foot high, at competent diſtance from the *Fruit-Tree*, and ſomewhat bending with their Tops towards it; ſince theſe, if they grow, will not be ſo apt to be ſtollen, as either dead *Thorns* or *Poſts*: Nor the Tree probably be more depriv'd of its Nouriſhment than by a *Quick-ſet* Hedge: Beſides, the *Tree* may be ty'd to one of the ſtouteſt of them inſtead of a *Stake*.

CHAP. VIII.

Of Pruning Fruit-Trees.

THE *Branches* are to be *lopp'd* in proportion to the Bruiſes of the *Roots*, whoſe *Fibres* elſe ſhould only be quickned, not altogether cut off nor intangled: For the *Top*, let a little of each Arm be lopp'd in *Cider-fruit* only; but for the *Pears*, cut two or three *Buds* deep at the Summities of their aſpiring *Branches*, juſt above the *Eye* ſlanting; this will keep them from over-haſty mounting, reduce them into *Shape*, and accelerate their *bearing*.

To this we add again out of Dr. *Beal's Herefordſhire Orchards*, Pag. 23. *In a* graffed Plant *every* Bough *ſhould be lopped at the very tops, in* Apples *and* Pears, *as in* Cherries *and* Plums, *if tranſplanted* without violation of *Roots*, which only indeed renders it leſs neceſſary.

In

In moſt kinds of natural Plants *the* Boughs *ſhould not at all be* lopped, *but ſome taken off cloſe to the* Trunk, *that the Root at firſt* Tranſplantation *be not engaged to maintain too many* Suckers: This to be underſtood though of ſuch as grow naturally from the *Kernel*, or the *Bur-knot*; eſpecially if *removed* after they are well rooted. *And this muſt be done with ſuch Diſcretion, that the* Top-branches *be not too cloſe together; for the natural* Plant *is apt to grow* ſpiry, *and thereby fails of Fruitfulneſs. Therefore let the reſerved* Branches *be divided at a convenient roundneſs:* In ſhort, let our Gardiner on all occaſions of this neceſſary work, of Trimming or Pruning either Fruit or Foreſt-Trees, conſult thoſe excellent Rules of Monſ. *de la Quintenie.*

The Branches *of thoſe we call Natural Plants* (*for uſually the* Grafted *generally fail*) *that are cut off, may be ſet, and will grow, though ſlowly.*

If the Top *prove* ſpiry, *or the Fruit* unkind, *then the due Remedy muſt be in* re-graffing. See *Chap.* xxviii. *in Silva.*

Beſides the Perries, dry'd *and* preſerv'd *Fruit, uſeful is the* Pear-Tree (*and beſt the moſt barren, or* Pigtail, *as they call it, which is the wild* Pyraſter) *for its excellent colour'd* Timber, hard *and* levigable (*ſeldom or not ordinarily* Worm-eaten) *eſpecially for* Stools, Tables, Chairs, Piſtol-Stocks, Inſtrument-Makers, Cabinets, *and very many works of the* Joiner (*who can make it eaſily to counterfeit* Ebony) *and* Sculptor, *either for* flat *or* emboſs'd *Works, and to* Engrave *upon, becauſe the* Grain *intercepts not the* Tool. *And ſo is likewiſe both the* Black-Cherry (*eſpecially for the* Necks *of* Muſical-Inſtruments) *and the* Plum-Tree.

ANI-

ANIMADVERSION.

IF *ſome of the following* Diſcourſes *ſeem leſs conſtant, or (upon Occaſion) repugnant to one another, they are to be conſider'd as relating only to the ſeveral* Guſts *and Guiſes of* Perſons *and* Countries, *and not to be looked upon as recommended* Secrets, *much leſs* impos'd, *farther than upon* Tryal *they may prove grateful to the* Publick, *and the different Inclinations of thoſe who affect theſe* Drinks : *Nor in Reaſon ought any to decry what is propos'd for the* univerſal Benefit ; *ſince it coſts them nothing but their Civility to ſo many obliging* Perſons.

General Advertiſements

CONCERNING

CIDER.

By Dr. *BEALE.*

1. HE that would treat exactly of *Cider* and *Perry*, muſt lay his Foundation ſo deep as to begin with the *Soil:* For as no Culture or Graffs will exalt the *French Wines* to compare with the *Wines* of *Greece*, *Canaries*, and *Monteſiaſco* ; ſo neither will the *Cider* of *Bromyard* and *Ledbury* equal that of *Hamlacy* and *King's-Capell*, in the ſame ſmall County of *Hereford.*

2. Yet the Choice of the *Graff* or *Fruit* hath ſo much of Prevalency, that the *Red-ſtrake Cider* will every where excel common *Cider*, as the *Grape* of *Frontignac*, *Canary*, or *Baccharach*, excels the common *French Grape*; at leaſt, till by Time and Traduction it degenerateth.

3. I cannot divine what *Soil* or what *Fruit* would yield the beſt *Cider*; or how excellent *Cider* or *Perry* might be, if all *Soils* in common and all *Fruit* were tried; but for *thirty Years* I have tried all ſorts of *Cider* in *Herefordſhire*, and for three Years I have had the beſt *Cider* in *Somerſetſhire*, and for ſome Years I have had the beſt Cider of *Kent* and *Eſſex* at my Call; yet hitherto I have always found the *Cider* of *Herefordſhire* the beſt, ſo adjudged by all good *Palates*. But I ſhall rejoice to be better informed, and truly, from all other *Countries*; and do both wiſh and hope, that in a ſhort time we ſhall every where be rich in many *Improvements*.

4. I cannot undertake to particularize all kind of *Soil*, no more than to compute how many *Syllables* may be drawn from the *Alphabet*; the Number of Alphabetical *Elements* being better known than the *Ingredients* and *Particles* of *Soil*, as *Chalk*, *Clay*, *Gravel*, *Sand*, *Marle*, (the Tenaciouſneſs, Colour, and innumerable other Qualities, ſhewing endleſs Diverſities;) and the Fruit of *Crabs*, *Apples* and *Pears*, being as various as of *Grapes*, *Figs* and *Plums*.

5. Yet in groſs, this I note, that as *Bacchus amat colles*, and a light Ground, ſo our beſt *Cider* comes from the hot *Rye-Lands*: In fat *Wheat-Land* it is more ſluggiſh; and in white ſtiff *Clay-Land* (as in *Wooll-hope* in *Herefordſhire*) the common *Cider* retains a thick Whey-colour, and not good: Only ſuch as riſeth there (by the Diligence or ſome *Art* of the *Inhabitants*) is bright and clear, and ſo lively, that they are apt to challenge the beſt.

6. Some *Cider* mixeth kindly with *Water* in the *Cider-Mill*, and will hold out a good ſmall *Wine*, and leſs inflaming, all the following *Summer*. Some *Cider* (as of *Long-hope*, a kind of ſowre *Woodland* Country of *Herefordſhire*) will not bear any Mixture of *Water*, but ſoon decay, and turn more harſh and ſowre. And thus we noted in *France*, ſome coarſe *Wines* ſtuck like Paint in the *Glaſs*, unwilling to incorporate with the Water: *Vin d'Aye*, and other delicate Wines, did ſpread themſelves more freely, as *Gold* is more *ductile* than baſer *Metals*.

7. Some would, for a Fit, extol the *Cider* of *Pearmains*, ſome of *Pippins*; (and of *Pippins* I have found a congenial *Liquor*, leſs afflicting *ſplenetick* Perſons, as in my own Experience I conceiv'd:) And Sir *Henry Lingen* once extolled the *Cider* of *Eleots* (as richly bedewing the Glaſs like the beſt *Canaries*;) and full Hogſheads of the *Stocking-Apple* have been try'd amongſt us, but diſappointing our Expectation, though perhaps by evil-ordering: Yet Mr. *Gritten* highly boaſted a Mixture of *Stocking-Apples* and *May-Pears*, tried (as I take it) by himſelf. After many Years Trial of thoſe and many other Kinds, the *Red-ſtrake* carried the common Fame, and from moſt of thoſe reduced Admirers. The *Gennet-Moil Cider* was indeed more acceptable to tender *Palates*; and it will require *Cuſtom* and *Judgment* to underſtand the Preferency of the *Red-ſtrake*, whoſe mordicant Sweetneſs moſt agreeably gives the Farewel, endearing the Reliſh to all flagrant *Palates*; which both obliges, whets and ſharpens the *Stomach* with its maſculine and *winy* Vigor; and many thouſands extol it for exceeding the ordinary *French Wine:* But grant it ſhould not be ſo ſtrong as *Wine*; let me ask how many ſober Perſons abroad addict themſelves to mere *Wine?* Then compare *this* with diluted *Wine*, as uſually for temperate Men; and then let the Trial

be made, whether the *Pippin-Cider* or *Red-ſtrake* will retain the *winy* Vigor in greater Proportion of *Water*. Add to this, that they commonly mingle *Water* in the *Preſs* with *Apples* (a good Quantity) whilſt they grind the *Apple*; and the *Water* thus mixed at that Time, does ſo pleaſingly incorporate in the Grinding, Fermentation, and Maturity of Veſſeling, that 'tis quite another and far more pleaſant Thing than if ſo much, or half ſo much *Water* were mingled in the *Cup* at the Drinking-time; as *Salt* on the *Trencher* will not give *Beef*, *Pork*, or *Neats-Tongue*, half that ſame Reliſh which duly *powder'd* and timely ſeaſon'd.

8. I did once prefer the *Gennet-Moil Cider*, but had only the *Ladies* on my Side, as gentler for their ſugary *Palates*, and for one or two ſober Draughts; but I ſaw Cauſe to recant, and to confeſs the *Red-ſtrake* to warm and whet the *Stomach*, either for *Meat* or more *Drink*.

9. The right *Cider-fruit* is far more *ſucculent*, and the *Liquor* more eaſily divides from the *Pulp* of the *Apple*, than in beſt *Table-fruit*, in which the Juice and the Pulp ſeem friendly to diſſolve together on the Tongue's End.

10. The Liquor of beſt *Cider-fruit* in the *Apple*, in beſt Seaſon of Ripeneſs, is more brisk and ſmart than that which proves duller *Cider*: And generally the fierceſt *Pears*, and a kind of tamer *Crabs*, (and ſuch was the *Red-ſtrake* called in my Memory) makes the more winy *Cider*.

11. *Palladius* denieth *Perry* to bear the Heat of *Summer*: but there is a *Pear* in *Bosbury*, and that Neighbourhood, which yields the *Liquor* richer the *ſecond* Year than the *firſt*, and ſo by my Experience very much amended the *third* Year: They talk much higher; and that's beyond my Account.

12. As *Cider* is for ſome time a Sluggard, ſo by like Care it may be retained to keep the *Memorials* of many *Conſuls*; and theſe ſmoaky Bottles are the *nappy Wine*. My Lord *Scudamore* ſeldom fails of three or four Years; and he is nobly liberal to offer the Trial.

13. As *red Apples*, ſo *red Pears* (and amongſt them the red *Horſe-pear* next to the *Bosbury*) have held out beſt for the Stomach and Durance: But *Pears* do leſs gratify the Stomach than *Apples*.

14. The Seaſon of *grinding* theſe *harſh Pears* is after a full Maturity, not till they have dropp'd from the Tree, and there lain under the Tree, or in Heaps, a *Week*, or thereabouts.

15. And ſo of *Cider-Apples*, as of *Grapes*, they require full *Maturity*, which is beſt known by their natural *Fragrancy*; and then alſo, as ripe *Grapes* require a few mellowing Days, ſo do all *Apples*, as about a Week or little more, ſo they be not bruiſed, which ſoon turns to Rottenneſs; and better ſound from the Tree than rotten from the Heap; though yet the Juice of *Apples* and *Pears* (yea, of *Cherries* or *Grapes*) is not altogether deſtroy'd, or quite putrified, as ſoon as the *Pulp* ſeems to be *corrupted*; neither haply needs there ſuch Curioſity, to cull and pick them ſo accurately, as ſome preſcribe, though doubtleſs the cleaner, and leſs contaminated the better.

16. That due Maturity, and ſome Reſt on the Heap, does make the *Liquor* taſte rather of *Apples* than *winy*, hath no more Truth, (if the *Cider* be kept to fit Age) than that very *old Cheeſe* doth taſte of a *Poſſet*.

17. The

17. The harſher the *Wild-fruit* is, the longer it muſt lie on Heaps; for of the ſame Fruit, ſuddenly ground, I have taſted good *Verjuice*; being on Heaps till near *Chriſtmas*, all *Good-fellows* called it *Rheniſh Wine*.

18. The *Grinding* is ſomewhat conſiderable, rather too much than too little: Here I ſaw a *Mill* in *Somerſetſhire*, which grinds half a *Hogſhead* at a *Griſt*, and ſo much the better Ground for the frequent Rolling.

19. * Soon after *Grinding* it ſhould be *preſs'd*, and immediately be put into the *Veſſel*, that it may ferment before the *Spirits* be diſſipated; and then alſo in fermenting Time, the *Vent-hole* ſhould not be ſo wide as to allow a prodigal waſte of the *Spirits*; and as ſoon as the Ferment begins to allay, the *Veſſels* ſhould be filled of the *ſame*, and well ſtopped.

* *See for* this *excellent* Directions *in* Mr. Newburgh's *preſerving of the* Surface; C. Taylor's *Veſſel, and* Dr. Smith's *cloſing of it up.*

20. Of late 'tis much commended, that before it be *preſs'd*, the *Liquor* and *Muſt* ſhould for four and twenty Hours ferment together in a *Vat* for that Purpoſe, covered, as *Ale* or *Beer* in the *Yeſt-Vat*, and then tunned up. This is ſaid to enrich the Liquor, and to give it ſomewhat of the *Tincture* of ſome *red Apples*, as I have ſeen, and very well approved.

21. As *Sulphur* hath ſome Uſe in *Wines*, ſo ſome do lay *Brimſtone* on a *Rag*, and by a *Wire* let it down into the *Cider-Veſſel*, and there *fire* it; and when the Veſſel is full of the *Smoak*, the Liquor ſpeedily pour'd in, ferments the better. I cannot condemn this, for *Sulphur* is more kind to the *Lungs* than *Cider*, and the Impurity will be diſcharged in the Ferment.

22. *Apples* over-long hoarded before *Grinding*, will for a long time hold the Liquor *thick*; and this Liquor will be both pleaſant, and as I think, wholſome; and we ſee ſome rich *Wines* of the later *Vintage*, and from *Greece*, retain a like Craſſitude, and they are both *Meat* and *Drink*.

23. I have ſeen thick harſh *Cider* the ſecond *Summer* become clear, and very richly pleaſant; but I never ſaw clear *acid Cider* recover.

24. *Wheat* or *Leven* is good and kind in *Cider*, as in *Beer*; *Juniper-Berries* agree well and friendly for *Coughs*, weak Lungs, and the Aged, but not at firſt for every Palate. The moſt infallible and undiſcerned Improver, is *Muſtard*, a *Pint* to each *Hogſhead*, bruiſed, as for Sauce, with a Mixture of the ſame *Cider*, and applied as ſoon as the Veſſel is to be cloſed after Fermenting.

25. *Bottling* is the next *Improver*, and proper for *Cider*; ſome put two or three *Raiſins* into every *Bottle*, which is to ſeek Aid from the Vine. Here in *Somerſetſhire* I have ſeen as much as a *Walnut* of *Sugar*, not without Cauſe, uſed for this Country *Cider*.

26. *Crabs* do not haſten the Decay of *Perry*, but preſerve it, as *Salt* preſerves *Fleſh*. But *Pears* and *Crabs* being of a thouſand Kinds, require more *Aphoriſms*: This only I would *Note*, that *Land* which refuſes *Apples* is generally civil to *Pears*; and *Crabs* mingled with them, make a rich and wholſome *Cider*, and has ſometime challenged even the beſt *Red-ſtrake*.

27. Neither *Wheat*, *Leven*, *Sulphur*, nor *Muſtard*, are uſed but by very few; and therefore are not neceſſary to make *Cider* laſt well for two, three, or four Years.

28. The

28. The time of drawing *Cider* into *Bottles* is beſt in *March*, it being then clarified by the *Winter*, and free from the Heat of the *Sun*.

29. In drawing, the *beſt* is neareſt the *Heart* or middle of the Veſſel, as the *Yolk* in the *Egg*.

30. *Red-ſtrakes* are of divers kinds, but the Name is in *Hereford-ſhire* appropriated to one kind, which is fair and large, of a high *purple* Colour, the Smell *Aromatical*, the *Tree* a very *Shrub*, ſoon bearing a full burden, and ſeldom or never failing till it decays, which is much ſooner than other *Apple-Trees*. 'Tis lately ſpread all over *Hereford-ſhire*; and he that computes ſpeedy Return, and true *Wine*, will think of no other *Cider-Apple*, till a better be found.

31. I ſaid the *Red-ſtrake* is a ſmall *Shrub*, 'tis of ſmall Growth where the *Cider* proves richeſt, for ought we have yet ſeen in *Hereford-ſhire*, *viz.* in light quick Land; and if the *Land* be very dry, jejune and ſhallow, *that* and other *Cider-fruit* (eſpecially the *Gennet-moyle*) will ſuſpend the ſtore of Fruit alternatively every other Year; except ſome *Blaſts* or ſurprizing *Froſts* in the *Spring* alter that *Method*; for two bad Years ſeldom come together, very hardly three.

32. In good Soil, I mean of *common Field* (for fat *Land* is not beſt for *Cider-fruit*, but common *arable*) I have ſeen the Trees of good growth, almoſt equalling other *Cider Trees*, the *Apple* larger and ſeldom failing of a good *Burthen*; thus in the *Vales* of *Wheat-lands*, in ſtrong *Glebe* or *Clay*, where the *Cider* is not ſo much extoll'd: But ſtill *Sack* is *Sack*, and *Canary* differs from *Claret*; ſo does the *Red-ſtrake Cider* of the *Vale* excel any other *Cider* of the foreſaid Soil, ſuch as is already celebrated for its kindneſs to good *Cider*.

33. Yet this diſtinction of *Soil* requires much *Experience*, and great heed, if we inſiſt upon accurate Directions; for as *Lauremberg* ſaith, *In pingui ſolo non ſeruntur omnia recte, neque in macro nihil.* And for *Gardens*, *Flowers*, and *Orchards*, I would chuſe many times ſuch Lands as do not pleaſe the *Husbandman*, either for *Wheat* or ſweet *Paſture*, which are his chief Aims; and thus *Lauremberg*, *In arida & tenui terra fœlicius proveniunt Ruta, Allium, Petroſelinum, Crocus, Hyſſopus, Capparis, Lupini, Satureia, Thymus*; *Arbores quoque tenue & macilentum ſolum amant*; *itemque frutices plerique hujuſmodi arbores ſunt, Pomus, Pyrus, Ceraſus, Prunus, Perſica, Cotonea, Morus, Juglans, Corylus, Staphylodendrum, Meſpilus, Ornus, Caſtanea, &c. Frutices, ſcil. Vitis, Berberis, Geniſta, Juniperus, Oxyacantha, Periclymenum, Roſa, Ribeſium, Uva, Spina, Vaccinia, &c.*

34. But here alſo we muſt diſtinguiſh, that *Pears* will bear in a very *ſtony*, *hungry*, *gravelly Land*, ſuch as *Apples* will not bear in; and I have ſeen *Pears* bear in a tough binding hungry *Clay*, when *Apples* could not ſo well bear it (as the ſmooth Rinds of the *Pear-trees*, and the *Moſſy* and *Canker'd Rinds* of the *Apple-Trees* did prove) the *Root* of a *Pear-Tree* being it ſeems more able to pierce a ſtony and ſtiff Ground. And *Cherries*, *Mulberries* and *Plums* can rejoice in a richer Soil, though by the ſmalneſs of the *Roots*, the ſhallower Soil will ſuffice them. And the *Quinces* require a deeper Ground and will bear with ſome degrees of hungry Land, if they be ſupply'd with a due meaſure of *Succulency*, and neighbouring Moiſture; and the other *Shrubs*, according to the ſmalneſs of their *Roots*, do generally bear a thinner Land. I have ſeen a *Soil* ſo much too rank for *Apples*

and *Plums*, that all their Fruits from Year to Year were always *worm-eaten*, till their lives were forfeited to the Fire.

35. To take up from these *Curiosities*, the most useful result to our purpose; we have always found those *Orchards* to grow best, last longest, and bear most, which are frequently tilled for *Barley Wheat*, or other *Corn*, and kept (by *Culture* and seasonable *Rest*) in due strength to bear a full *Crop*. And therefore, whereas the *Red-strake* might otherwise without much Injury be planted at *fifteen* or *twenty* foot *distance*, and the best *distance* for other *Cider-fruit* hath heretofore been reputed *thirty*, or *two* and *thirty* foot; very good Husbands do now allow in their largest *Inclosures* (as of 20, 40 or 100 *Acres*) *fifty* or *sixty* foot distance, that the Trees may not much hinder the *Plough*, and yet receive the benefit of *Compost*; and a *Horse-teem* well governed will (without any damage or danger) *plough* close to the *Trees*.

36. In such Soil as is here required, namely of good *Tillage*, an *Orchard* of *grafted Red-strakes* will be of good growth, and good burthen, within *ten* or *twelve Years*, and branch out with good store to begin an encouragement at three Years *graffing*; and (except the Land be very unkind) will not yield to any decay within *sixty* or *eighty Years*, which is a Man's Age.

37. In some *Sheets* I render'd many Reasons against Mr. *Austin* of *Oxford*, why we should prefer a peculiar *Cider-fruit*, which in *Herefordshire* are generally called *Musts*; (so we name both the *Apple*, and the *Liquor* and *Pulp*, as mingled together in the contusion) as from the Latin *Mustum*. *White-Musts*, of divers kinds; *Red-cheek'd* and *Red-strak'd Musts* of several kinds; *Green-Musts* called also *Green fillet*, and *Blew spotted*: Why, I say, we should prefer them for *Cider*, before *Table-fruit*, as *Pippins*, *Pearmains*, &c. And I do still insist on them: 1. The Liquor of these *Cider-fruits*, and of many kinds of austere Fruit, which are no better than a sort of full succulent *Crabs*, is more sprightly, brisk and *winy*. For Essay, I sent up many *Bottles* to *London*, that did me no Discredit. Secondly, one Bushel of the *Cider-fruit* yields twice or thrice as much Liquor. Thirdly, The *Tree* grows more in three or four Years than the others in ten Years, as I oft-times remarked. Fourthly, The *Tree* bears far greater store, and doth more generally escape *Blasts* and *Frosts* of the *Spring*. I might add, that some of these, and especially such *Pears* as yield the best *Perry*, will best escape the hand of the *Thief*, and may be trusted in the open Field.

38. By the *first*, *second* and *fourth* of these Reasons, I must exclude the *Gennet-Moyle* from a *right Cider-fruit*, it being dry and very apt to take *frosty Blasts*; yet it is no *Table fruit*, but properly a baking Fruit, as the ruddy Colour from the *Oven* shews.

39. I said that the right *Cider-fruit* generally called *Musts*, and deserving the *Latin* Name *Mustum*, is of divers *kinds*; and I have need to note more expresly that there is a *Red-strake Must*, (as I have often seen) but not generally known, that is quite differing from the famous *Red-strake*, being much less, somewhat oblong and like some of the white *Musts* in shape, and full of a very good *winy* Liquor. I could willingly name the *Persons* or *Place* where the distinct kinds are best known: It was first shewed me by *John Nash* of *Ashperton* in *Herefordshire*; and for some Years they did in some places distinguish a *Red-strake*, as yielding a richer *Red-strake Cider* of a more *fulvous* or *ruddy* colour; but this difference, as far as I could find, is but a choice of a better

better *insolated* or ruddy Fruit of the best kind, as taken from the *South Part* of the *Tree*, or from a *Soil* that renders them richer. But my Lord *Scudamore*'s is safely of the best sort: And Mr. *Whingate* of the *Grange* in *Dimoc*, and some of *Kings-capel*, do best know these and other differences, *Straked-Must*, *right Red-strake*, *red Red-strake*, &c.

40. The greenish *Must*, (formerly called in the *Language* of the *Country*, the *Green-fillet*) when the *Liquor* is of a kindly ripeness, retains a *Greenness* equal to the *Rhenish-glass*; which I note for them that conceive no *Cider* to be fit for use till it be of the *colour* of *old Sack*.

41. To direct a little more *Caution*, for enquiry of the right *Red-strake*, I should give notice that some *Months* ago, Mr. *Philips* of *Mountague* in *Somersetshire*, shewed me a very fair large *Red-strake Apple*, that by smell and sight seem'd to me and to another of *Herefordshire*, then with me, to be the best *Red-strake*; but when we did cut it, and taste it, we both denied it to be *right* (the other with much more confidence than my self) but Mr. *Philips* making *Cider* of it, this Week invited me to it, assuring that already it equals or resembles *High-country Wines*. It had not such plenty of Juice as our *Red-strakes* with us, and it had more of the Pleasantness of *Table-fruit*, which might be occasion'd, for ought I know, by the purer and quicker Soil. This *Apple* is here called *Meriot-Ysnot*, and great store of them are at *Meriot*, a *Village* not far distant: Possibly, this *Meriot* may prove to be the *Red-strake* of *Somersetshire*, when they shall please to try it apart with equal diligence and constancy as they do in *Herefordshire*: This *Fruit* is of a very lovely *hue*, and by some conceiv'd to be of affinity to the *Red-Jersey Apple*, which is reported to *tinge* so deeply: In truth, there can hardly be a deeper *Purple*, than is our right *Herefordshire Red-strake*, having a few *Strakes* towards the *Eye*, of a *dark* colour, of *Orange-tawny* intermingled: But, 'tis no wonder if an *Apple* should change its *Name* in travelling so far beyond the *Severn*, when even in this *Country*, most sorts of *Apples*, and especially *Cider-fruit*, loseth the Name in the next *Village*.

42. I may now ask why we should talk of other *Cider-fruit* or *Perry*, if the best *Red-strake* have all the aforesaid Pre-eminences of richer and more *winy* Liquor, by half sooner an *Orchard*, more constantly bearing, &c. An *Orchard* of *Red-strakes* is commonly as full of Fruit at *ten* Years, as other *Cider-fruit* at *twenty* Years, or as the *Pippin* and *Pearmain* at *thirty* or thereabout.

43. To this may be answered, that all *Soil* bear not *Apples*, and to some *Soils* other *Apples* may be more kind; and if we be driven to *Perry*, much we may say both in behalf of the *Perry*, and of the *Pear*, of the *Fruit*, and of the *Tree*: It is the goodlier Tree for a *Grove*, to shelter a House and Walks from *Summers Heat* and *Winters cold Winds*, and far more *lasting*; the pleasantest *Cider-Pear* of a known Name amongst them, is the *Horse-Pear*. And it is much argued, whether the *White-horse Pear*, or the *Red-horse Pear* be the better; where *both* are *best*, within two *Miles* they differ in Judgment. The *Pear* bears almost its *weight* of sprightful *winy Liquor*; and I always preferred the *tawny* or *ruddy Horse-pear*, and generally *that Colour* in all *Pears* that are proper for *Perry*.

44. I rejected *Palladius* against the durableness of *Perry*; his Words are, *Hyeme durat, sed prima acescit æstate, Tit. 25. Febr.* possibly so

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of common *Pears*, and in hotter Countries; but from good *Cellars* I have tasted a very brisk lively and *winy Liquor* of these *Horse-Pears* during the end of *Summer*; and a *Bosbury-Pear* I have named and often tryed, which without *bottling*, in common *Hogsheads* of vulgar and indifferent *Cellars*, proves as well pleasanter as richer the *second* Year, and yet also better the *third* Year. A very honest, worthy and witty *Gentleman* of that Neighbourhood would engage to me, that in good *Cellars*, and in careful custody, it passeth any account of decay, and may be *heightned* to a kind of *Aqua-vitæ*. I take the Information worthy the *Stile* of our modern *Improvements*.

The *Pear-Tree* grows in *common Fields* and wild *stony Ground*, to the largeness of bearing one, two, three or four *Hogsheads* each Year.

45. This *Bosbury-tree*, and such generally that bear the most lasting *Liquor* and *winy*, is of such *insufferable* taste, that hungry *Swine* will not *smell* to it; or if *Hunger* tempt them to taste, at first crush they shake it out of their *Mouths*; (I say not this of the *Horse-Pear*) and the Clowns call other *Pears*, of best Liquor, *Choak-Pears*, and will offer Money to such as dare adventure to taste them, for their *sport*; and their *Mouths* will be more *stupified* than at the root of *Wake-robin*.

46. A row of *Crab-Trees* will give an Improvement to any kind of *Perry*; and since *Pears* and *Crabs* may be of as many *kinds* as there are *Kernels*, or different kinds or mixtures of *Soils*; in a general *Character* I would prefer the largest and fullest of all austere Juices.

47. Mr. *Lill* of *Mark-hill* (aged about ninety Years) ever observ'd this Rule, to graff no *wild Pear-Tree* till he saw the *Fruit*; if it proved *large*, *juicy*, and *brisk*, it failed not of good *Liquor*. But I see cause to say, that to *graff* a young Tree with a riper *Graff*, and *known Excellency*, is a sure Gain, and hastens the return.

48. Mr. *Speke* (last *High-Sheriff* of *Somersetshire*) shewed me in his *Park* some store of *Crab-Trees*, of such huge *Bulk*, that in this fertile Year he offered a *Wager*, that they would yield one or two *Hogsheads* of *Liquor* each of them; yet were they small dry *Crabs*.

49. I have seen several sorts of *Crabs* (which are the natural *Apple*, or at worst but the *Wild-Apple*) which are as large as many sorts of *Apples*, and the Liquor *winy*.

50. I have disclaimed the *Gust* of *Juniper-berries* in *Cider*; I tried it only *once* for *my self*, and drank it before *Christmas*: Possibly in more time the Relish had been subdu'd or improv'd, as of *Hops* in *Stale-Beer*, and of *Rennet* in good *Parmasan*. Neither was the *Gust* to me otherwise unpleasant than as *Annis-seeds* in *Bread*, rather *strange* than *odious*; and by custom made grateful; and it did hasten the *Clarification*, and increase the Briskness to an endless *sparkling*: Thus it indulgeth the *Lungs*, and nothing more *cheap*; where *Juniper* grows, a *Girl* may speedily fill her Lap with the *Berries*.

If *Barbadoes* Ginger be good, cheaper, and a more pleasant Preserver of Beer, it must probably be most kind for *Cider*: For first, of all the Improvers that I could name, bruised *Mustard* was the best; and this *Ginger* hath the same quick mordicant Vigor in a more noble and more *Aromatic* Fragrancy. Secondly, *Cider* (as I oft complain) is of a sluggish and somewhat windy nature; and for some *Months* the best of it is chain'd up with a cold *ligature*,

as we fancy the Fire to be lock'd up in a cold *Flint*. This will relieve the *Priſoner*. And, thirdly, will aſſiſt the *winy* Vigor for them that would uſe it inſtead of a ſparkling *Wine*. Fourthly, 'tis a good ſign of much Kindneſs, and great Friendſhip: It will both enliven the *Ferment* for ſpeedier Maturity, and alſo hold it out for more Duration; both which Offices it performs in Beer.

51. *Cider* being *windy* before Maturity, ſome that muſt not wait the Leiſure of beſt *Seaſon*, do put Sprigs of *Roſemary* and *Bays* in the *Veſſel*; the *firſt* good for the *Head*, and not unpleaſant; the *ſecond* an *Antidote* againſt *Infections*; but leſs pleaſant till Time hath incorporated the Taſtes.

52. And why may we not make mention of all theſe *Mixtures*, as well as the *Ancients* of their *Vinum Marrubii*, *Vinum Abrotonites*, *Abſynthites*, *Hiſſopites*, *Marathites*, *Thymites*, *Sydonites*, *Myrtites*, *Scillites*, *Violaceum*, *Sorbi*, &c.

53. And for *Mixtures*, I think we may challenge the *Ancients*, in naming the *Red-raſpy*; of which there is in this County a *Lady* that makes a *Bonella*, the beſt of *Summer-drinks*. And more yet, if we name the *Clove-july-flower*, or other *July-flowers*, a moſt grateful *Cordial*, as it is infuſed by a *Lady* in *Staffordſhire*, of the Family of the *Devereux*'s, and by ſome *Ladies* of this Country.

54. I could alſo give ſome Account of *Cherry-wine*, and Wine of *Plums*; the *laſt* of which (in the beſt Eſſay that I have yet ſeen) is hardly worthy to be named. But, I conceive, and have ground for it, that ſome good *Liquor* and *Spirits* may be drawn from ſome ſorts of them, and in *Quantity*: And the vaſt Store of *Cherries* in ſome Places, under a *Penny* the *Pound*, and of *Plums* that bend the *Trees* with their *Burdens*, and their expedite Growth, makes it cheap enough; and as in the other, ſo in theſe, the large *Engliſh* or *Dutch* ſharp *Cherry* makes the *Cherry-wine*; and the full, black, tawny *Plum*, as big as a *Walnut*, (not the kind of *Heart Cherries*, nor the *Plum* which divides from the *Stone*) make the *Wine*. Their Cheapneſs ſhould recommend them to more general Uſe at *Tables*, when *dried* like *Prunella*'s, (an eaſy Art) and then wholſomer.

55. To return to *Red-ſtrake*; 'tis a good Drink as ſoon as well *fermented*, or within a *Month*; better after ſome *Froſts*; and when *clarified*, rich *Wine*, when it takes the *Colour* of *old Sack*. In a good *Cellar* it improves in *Hogſheads* the ſecond Year; in *Bottles* and *ſandy Cellars* keeps the *Records* of late *Revolutions* and old *Mayoralities*. *Quære* the manner of laying them up in *Sand-houſes?*

56. I tried ſome *Bottles* all the *Summer* in the bottom of a *Fountain*; and I prefer that way where it may be had. And 'tis ſomewhat ſtrange, if the Land be neither dry for a *Sand-houſe*, nor *fountainous* for this better Expedient. When *Cider* is ſettled, and altogether, or almoſt *Clarify'd*, then to make it *ſprightful* and *winy*, it ſhould be drawn into well *cork'd* and well-bound *Bottles*, and kept ſome time in *Sand* or Water; the longer the better, if the kind be good. And *Cider* being preſerv'd to due *Age*, *bottled* (and kept in cool Places, *Conſervatories*, and *refrigerating* Springs) it does almoſt by Time turn to *Aqua-vitæ*; the *Bottles* ſmoak at the Opening, and it catches *Flame* ſpeedily, and will burn like *Spirit* of *Wine*, with a fiery Taſte; and it is a laudable way of trying the Vigor of *Cider* by its Promptneſs to *burn*, and take *Fire*, and from the Quantity of *Aqua-vitæ*

which it yields. *Cider* affords by way of *Diſtillation*, an incomparable and uſeful *Spirit*, and that in ſuch Plenty, as from *four Quarts*, a *Pint* has been extracted.

57. I muſt not preſcribe to other *Palates*, by aſſerting to what Degree of *Perfection* good *Cider* may be raiſed, or to compare it with *Wines*: But when the late *King* (of bleſſed Memory) came to *Hereford* in his Diſtreſs, and ſuch of the *Gentry* of *Worceſterſhire* as were brought thither as *Priſoners*; both *King*, *Nobility*, and *Gentry*, did prefer it before the beſt *Wines* thoſe Parts afforded; and to my Knowledge that *Cider* had no kind of *Mixture*. Generally all the *Gentry* of *Herefordſhire* do abhor all Mixtures.

Yet if any Man have a Deſire to try *Concluſions*, and by an harmleſs *Art* to convert *Cider* into *Canary-wine*; let the *Cider* be of the former Year, *Maſculine*, and in full Body, yet pleaſant and well Taſted. Into ſuch *Cider* put a *Spoonful*, or *ſo*, of the *Spirit* of *Clary*, it will have ſo much of the *Race* of *Canary*, as may deceive ſome who pretend they have diſcerning *Palates*.

Sir Paul Neile's *Diſcourſe of* CIDER.

My Lord,

IN Obedience to the *Commands* of this *Honourable Society*, I have at length endeavour'd to give this brief *Account* of that little which I know concerning the *ordering* of *Cider*; and in *that* I ſhall propound to my ſelf *ſix* Things.

Firſt, To ſhew that *Cider* made of the beſt *Eating-Apples* muſt needs be *once* the beſt, (that is to ſay) the pleaſanteſt *Cider*.

Secondly, That hitherto the general Opinion hath been otherwiſe; and that the Reaſon of that Miſtake was the not apprehending the true Cauſe why the *Pippin-Cider*, &c. did not retain its Sweetneſs, when the *Hard-Apple-Cider* did.

Thirdly, What is the true Cauſe that *Pippin-Cider*, uſed in the ordinary Method, will not retain its Sweetneſs.

Fourthly, How to cure that *Evil* in *Pippin-Cider*.

Fifthly, A probable Conjecture how in ſome Degree by the ſame *Method* to amend the *Hard-Apple-Cider*, and *French-Wine*.

Sixthly, That what is here propounded cannot chuſe but be *wholſome*, and may be done to what Degree every Man's *Palate* ſhall wiſh.

Having now told your *Lordſhip* what I will endeavour to do, before I enter upon it, I muſt declare what I will not in the leaſt pretend to do.

1. I do not pretend to any Thing concerning the *planting* and *graffing* of *Trees*, &c.

Nor what *Trees* will ſooneſt *bear*, or *laſt* longeſt.

Nor what *ſorts* of *Trees* are the beſt *Bearers*, and may with leaſt Danger grow in *common Fields*.

Nor what *ſort* of *Fruit* will yield the greateſt ſtore of *Cider*.

Nor

Nor what *Cider* will *keep* the longeſt, and be the ſtrongeſt and wholſomeſt to *drink* conſtantly with *Meat*.

The only Thing I ſhall endeavour, being to preſcribe a way to make a ſort of *Cider* pleaſant and quick of Taſte, and yet wholſome to *drink*, ſometimes, and in a moderate Proportion. For if this be an *Hereſy*, I muſt confeſs my ſelf guilty; that I prefer *Canary-wine*, *Verdea*, the pleaſanteſt *Wines* of *Greece*, and the *High-country-wines* before the *harſh Sherries*, *Vin d'Hermitage*, and the *Italian* and *Portugal* rough *Wines*, or the beſt *Graves-wines*; not at all regarding that I am told, and do *believe*, that theſe *harſh Wines* are more comfortable to the *Stomach*, and a *Surfeit* of them leſs *noxious*, when taken; nor to be taken but with drinking greater Quantities than can with Safety be taken of thoſe other pleaſant *Wines*: I ſatisfying my ſelf with this, that I like the *pleaſant Wines* beſt; which yet are ſo wholſome, that a Man may drink a moderate Quantity of them without Prejudice.

Nor ſhall I at all concern my ſelf, whether this ſort of *Cider* I pretend to is ſo *vinous* a Liquor; and conſequently will yield ſo much *Spirit* upon *Diſtillation*, or ſo ſoon make the *Countryman* think himſelf a *Lord*, as the *Hard-Apple-Cider* will do: Nor whether it will *laſt* ſo long; for it is no part of my *Deſign* to perſuade the *World* to lay by the making of *Hard-Apple-Cider*; but rather in a degree to ſhow how to improve that in point of Pleaſantneſs; and that by the making and rightly ordering of *Cider* of the beſt *Eating-Apples*, as *Golden-Pippins*, *Kentiſh-Pippins*, *Pearmains*, &c. there may be made a more pleaſant *Liquor* for the Time it will laſt, than can be produced from thoſe *Apples* which I call *Hard-Apples*; that is to ſay, *Red-ſtrakes*, *Gennet-Moyles*, the *Bromsbury-Crab*, &c. which are ſo *harſh* that a *Hog* will hardly eat them.

Nor ſhall I at all meddle with the making of *Perry*, or of any mixed Drink of the Juice of *Apples* and *Pears*; though poſſibly what I ſhall ſay for *Cider*, may be aptly applied to *Perry* alſo.

For the *firſt* Particular, I aſſerted that the beſt *Apples* would make the pleaſanteſt, which in my Senſe is the beſt *Cider*; (and I account thoſe the beſt Apples, whoſe Juice is the pleaſanteſt at the Time when firſt preſſed before Fermentation.) I ſhall need (beſides the Experience of the laſt *ten* Years) only to ſay, that it is an undeniable Thing in all *Wines*, that the pleaſanteſt *Grapes* make the richeſt and pleaſanteſt *Wines*; and that *Cider* is really but the *Wine* of *Apples*, and not only made by the ſame way of *Compreſſion*, but left to it ſelf, hath the ſame way of *Fermentation*; and therefore muſt be liable to the ſame Meaſures in the Choice of the Materials.

To my ſecond *Aſſertion*, that this Truth was not formerly owned, by reaſon that in *Herefordſhire*, and thoſe Countries where they abound both with *Pippins* and *Hard-Apples* of all Sorts, they made *Cider* of both Sorts, and uſed them alike; that is, that as ſoon as they *ground* and *preſſed* the *Apples* and *ſtrained*, the *Liquor*, they put it into their *Veſſels*, and there let it lie till it had wrought; and afterwards was ſettled again and *fined*; as not thinking it wholſome to drink till it had thus (as they call it) *purg'd* its ſelf; and this was the frequent Uſe of moſt Men in the more *Southern* and *Weſtern* Parts of *England* alſo. Now when *Cider* is thus uſed,

it

it is no wonder that when they came to broach it, they for the moſt part found their *Pippin-Cider* not ſo pleaſant as their *Moyle* or *Red-ſtrake-Cider*; but to them it ſeemed a wonder, becauſe they did not know the *reaſon* of it (which ſhall be my next work to make out) for till they knew the *reaſon* of this *effect*, they had no cauſe but to think it was the Nature of the ſeveral *Apples* that produced it; and conſequently to prefer the *Hard-Apple-Cider*, and to uſe the other Apples (which were good to eat *raw*) for the *Table*: Which was an uſe not leſs neceſſary, and for which the *Hard-Apples* were totally improper.

To my *third* Aſſertion, which is, that in *Herefordſhire* they knew not what was the true cauſe why their *Pippin-Cider* (for by that name I ſhall generally call all ſorts of *Cider* that is made of *Apples* good to eat raw) was not, as they uſed it, ſo good as the *Cider* made of *Hard-Apples* (for by that Name, for brevities ſake, I ſhall call the *Cider* of *Moyle*, *Red-ſtrake*, and all other ſorts of *harſh Apples*, not fit to eat raw.) *Firſt*, I ſay, for all *Liquors* that are *vinous*, the cauſe that makes them ſometimes harder or leſs pleaſant to the taſte, than they were at the firſt preſſing, is the too much *fermenting*: If *Wine* or *Cider* by any *accidental* cauſe do ferment twice, it will be harder than if it had fermented but once; and if it *ferment* thrice, it is harder and worſe than if it had *fermented* but twice; and ſo onward, the oftner it *ferments*, and the longer it *ferments*, it ſtill grows the harder. This being laid as a *Foundation*, before we proceed further we muſt firſt conſider what is the Cauſe of *Fermentation* in *Wine*, *Cider*, and all other *vinous Liquors*. Which (in my poor opinion) is the groſs part of the *Liquor*, which 'ſcapes in the ſtraining of the *Cider* (for in making of *Wine* I do not find that they uſe the Curioſity of ſtraining) and which is generally known by the name of the *Lee* of that (*Wine* or) *Cider*. And this *Lee* I ſhall, according to its Thickneſs of Parts, diſtinguiſh into the *groſs Lee*, and the *flying Lee*.

Now, according to the old Method of making and putting up of *Cider*, they took little care of putting up *only* the clear part of the *Cider* into their Veſſels or *Cask*; but put them up thick and thin together, not at all regarding this *Separation*; for experimentally they found that how thick ſoever they put it up, yet after it had throughly wrought or *fermented*, and was ſettled again, it would ſtill be clear; and perchance that which was put up the ſooneſt after it was preſſed, and the thickeſt, would, when the *Fermentation* was over, be the cleareſt, the briskeſt, and keep the longeſt. This made them confidently believe that it was not only not inconvenient to put it up quickly after the *preſſing*, but in ſome degree neceſſary alſo to put it up ſoon after the *preſſing*, ſo that it might have ſo much of the *Lee* mixed with it, that it might certainly, ſoon, and ſtrongly put it into a *Fermentation*, as the only means to make it *wholeſom*, *clean* and *brisk*; and when it either did not (or that they had reaſon to doubt that it would not) work or *ferment* ſtrongly enough, they had uſed to put in *Muſtard*, or ſome other thing of like nature, to increaſe the *Fermentation*.

Now that which in *Cider* of *Pippins* hath been a cauſe of greater *Fermentation* than in *Cider* of *Hard-Apples*, being both uſed after the former method, is this, that the *Pippins* being a ſofter Fruit, are in the *Mill* bruiſed into ſmaller *Particles* than the harder ſorts of *Apple*; and conſequently more of thoſe ſmall parts paſs the Strainer in the *Pippin-Cider*, than in the *Cider* of *Hard-Apples*, which cauſeth a

ſtronger *Fermentation*, and (according to my former *Principle*) a greater loſs of the native Sweetneſs, than in that of *Hard-Apple-Cider*; and not only ſo, but the *Lee* of the *Hard-Apple-Cider* being compounded of greater *Particles* than the *Lee* of the *Pippin-Cider*, every individual *Particle* is in itſelf of a greater weight than the *Particles* of the Lee of the *Pippin-Cider*; and conſequently leſs apt to riſe upon ſmall Motions, which produceth this effect; that when the *Fermentation* of the *Hard-Apple-Cider* is once over, unleſs the Veſſel be ſtirred, it ſeldom falls to a ſecond *Fermentation*; but in *Pippin-Cider* it is otherwiſe: For if the *groſs Lee* be ſtill remaining with the *Cider*, it needs not the Motion of the Veſſel to cauſe a new *Fermentation*, but every Motion of the *Air* by a change of *Weather* from dry to moiſt will cauſe a new *Fermentation*, and conſequently make it work till it hath deſtroy'd it ſelf by loſing its native Sweetneſs. And this alone hath been the Cauſe, why commonly when they *broach* their *Pippin-Cider* they find it ſo unpleaſant, that generally the *Hard-Apple Cider* is preferred before it, although at firſt it was not ſo pleaſant as the *Pippin-Cider*. Yet after this Miſchief hath prevail'd over the *Pippin-Cider*, it is no wonder to find the *Hard-Apple-Cider* remaining not only the ſtronger, but even the more pleaſant taſted. This to me ſeems ſatisfactory for the diſcovery of the *Cauſe*, why in *Herefordſhire* the *Hard-Apple-Cider* is preferred before the *Pippin-Cider*. But perhaps it may by ſome be *objected*, that they have before the *ten Years*, in which you pretend you found this to be the cauſe of ſpoiling the *Pippin-Cider*, been in *Herefordſhire*, and taſted the beſt *Cider* that *Country* did afford, and yet it was not like the *Pippin-Cider* they had before then taſted in other Parts. To this I do *anſwer* at preſent briefly, That by ſome Miſtake, or Chance, the Maker of this *Pippin-Cider*, which proved good, had done that, or ſomewhat like that, which under the next *Aſſertion* I ſhall ſet down, as a *Method* to cure the Inconveniences which happen to *Pippin-Cider*, by the ſuffering it to *ferment* too often, or too ſtrongly; but till that be explained, it would be improper to ſhew more fully what theſe particular *Accidents* might poſſibly be, which (without the intention of thoſe Perſons which made the *Cider*) cauſed it to prove much better than their expectation, or indeed better than any could afterwards make: They poſſibly aſſigning the Goodneſs of that *Cider* to ſomething that was not really the *Cauſe* of that *Effect*.

To juſtify my fourth *Aſſertion*, and ſhew a *Method* how to *cure* the Inconveniency which happens to *Pippin-Cider* by the over-working, I muſt firſt take notice of ſome things which I have been often told concerning *Wine*, and which indeed gave me the light to know what was the *Cauſe* which had made *Pippin-Cider* that had wrought long, *hard* when it came to be *clear* again. The thing I mean, is, that in divers *Parts*, and even in *France*, they make *three ſorts* of *Wine* out of one and the ſame *Grapes*; that is, they firſt take the *Juice* of the *Grapes* without any more preſſing than what comes from their own weight in the *Vat*, and the bruiſing they have in putting into the Veſſel, which cauſeth the ripeſt of thoſe *Grapes* to break, and the *Juice* without any preſſing at all makes the pleaſanteſt and moſt delicate *Wine*: And if the *Grapes* were *red*, then is this firſt *Wine* very *pale*. The ſecond ſort they preſs a little, which makes a *redder Wine*, but neither ſo pleaſant as the firſt, nor ſo harſh as the laſt, which is made by the utmoſt preſſing of the very *Skins* of the *Grapes*, and is by much more

harſh, and of deeper Colour than either of the other two. Now I preſume the *Cauſe* of this (at leaſt in part) to be, that in the firſt ſort of *Wine*, which hath little of the Subſtance, beſide the very *Juice* of the *Grape*, there is little *Lee*, and conſequently little *Fermentation*; and becauſe it doth not work long, it loſeth but little of the original Sweetneſs it had: The ſecond ſort being a little more preſſed, hath ſomewhat more of the Subſtance of the *Grape* added to the *Juice*; and therefore having more of that part which cauſeth *Fermentation* put with it, *ferments* more ſtrongly, and is therefore, when it hath done working, leſs pleaſant than the firſt ſort, which wrought leſs. And for the ſame reaſon the third ſort being moſt of all preſſed, hath moſt of the Subſtance of the *Grape* mingled with the *Liquor*, and worketh the longeſt: But at the end of the working when it *ſettles* and is *clear*, it is much more harſh than either of the two firſt ſorts. The Thought of this made me firſt apprehend that the *Subſtance* of the *Apple* mingled with the *Juice* was the cauſe of *Fermentation*, which is really nothing elſe but an endeavour of the *Liquor* to free itſelf from thoſe *heterogenous* Parts which are mingled with it: And where there is the greateſt proportion of thoſe *diſſimular* parts mingled with the *Liquor*, the endeavour of *Nature* muſt be the ſtronger, and take up more time to perfect the *Separation*; which when finiſhed leaves all the *Liquor* clear, and the groſs parts ſettled to the bottom of the *Veſſel*; which we call the *Lee*. Nor did this apprehenſion deceive me; for when I began (according to the *Method* which I ſhall hereafter ſet down) to ſeparate a conſiderable part of the *Lee* from the *Cider* before it had *fermented*, I found it to retain a very great part of its original Sweetneſs, more than it would have done if the *Lee* had not been taken away before the *Fermentation*; and this not once, but conſtantly for *ſeven Years*.

Now the *Method* which I uſed was this: When the *Cider* was firſt ſtrained, I put it into a great *Vat*, and there let it ſtand *twenty four hours* at leaſt (ſometimes more, if the *Apples* were more ripe than ordinary) and then at a *Tap* before prepared in the *Veſſel*, three or four *Inches* from the bottom, I drew it into *Pails*, and from thence filled the *Hogſhead* (or leſſer *Veſſel*) and left the greateſt part of the *Lee* behind; and during this time that the *Cider* ſtood in the *Vat*, I kept it as cloſe covered with *Hair-cloths* or *Sacks*, as I could; that ſo too much of the *Spirits* might not evaporate.

Now poſſibly I might be asked why I did not, ſince I kept it ſo cloſe in the *Vat*, put it at firſt into the *Veſſel*? To which I anſwer, that had I put it at firſt into the *Veſſel*, it would poſſibly (eſpecially if the *Weather* had chanced to prove wet and warm) have begun to *ferment* before that time had been expired; and then there would have been no Poſſibility to have ſeparated any Part of the *groſs Lee*, before the *Fermentation* had been wholly finiſhed; which keeping it only covered with theſe Cloths was not in danger: For, though I kept it warm in ſome degree, yet ſome of the *Spirits* had ſtill Liberty to *evaporate*; which had it been in the *Hogſhead* with the *Bung* only open, they would not ſo freely have done; but in the firſt 24 hours it would have begun to *ferment*, and ſo my Deſign had been fully loſt: For thoſe *Spirits*, if they had been too ſtrongly *reverberated* into the *Liquor*, would have cauſed a *Fermentation* before I could have taken away any Part of the *groſs Lee*. For the great *My-*

ſtery of the whole thing lies in this, to let ſo many of the *Spirits* evaporate, that the *Liquor* ſhall not *ferment* before the *groſs Lee* be taken away; and yet to keep *Spirits* enough to cauſe a *Fermentation* when you would have it. For if you put it up as ſoon as it is *ſtrain'd*, and do not let ſome of the *Spirits* evaporate, and the *groſs Lee* by its Weight only be ſeparated without *Fermentation*, it will *ferment* too much, and loſe its Sweetneſs; and if none be left, it will not *ferment* at all; and then the *Cider* will be dead, flat, and ſowre.

Then after it is put into the *Veſſel*, and the *Veſſel* fill'd all but a little, (that is, about a *Gallon*, or thereabout) I let it ſtand (the *Bung-hole* being left only covered with a *Paper*, to keep out any Duſt or Filth that might fall in) for 24 Hours more; in which time the *groſſeſt* Part of the *Lee* being formerly left in the *Vat*, it will not *ferment*, but you may draw it off by a *Tap* ſome two or three Inches from the bottom of the *Veſſel*, and in that ſecond *Veſſel* you may ſtop it up, and let it ſtand ſafely till it be fit to *bottle*; and poſſibly that will be within a Day or more: But of this time there is no certain meaſure to be given, there being ſo many things that will make it longer or leſs while before it be fit to *bottle*. As for *Example:* If the *Apples* were *over-ripe* when you ſtamped them, or ground them in the *Mill*, it will be the longer before it will be clear enough to *bottle*; or if the *Weather* prove to be warmer or moiſter than ordinary; or that your *Apples* were of ſuch kinds, as with the ſame Force in the ſtamping or grinding they are broken into ſmaller *Particles* than other *Apples* that were of harder kinds.

Now, for knowing when it is fit to *bottle*, I know no certain Rule that can be given, but to *broach* the Veſſel with a ſmall Piercer, and in that *Hole* fit a *Peg*, and now and then (two or three times in a day) draw a *little*, and ſee what Fineneſs it is of; for when it is *bottled* it muſt not be perfectly fine; for if it be ſo, it will not *fret* in the *Bottle*, which gives it a fine Quickneſs, and will make it *mantle* and ſparkle in the *Glaſs*, when you pour it out: And if it be too thick when it is *bottled*, then, when it hath ſtood ſome time in the *Bottles*, it will *ferment* ſo much, that it may poſſibly either drive out the *Corks*, or break the *Bottles*, or at leaſt be of that ſort (which ſome call *Pot-gun-drink*) that when you open the *Bottles* it will fly about the Houſe, and be ſo *windy* and *cutting*, that it will be inconvenient to drink: For the right Temper of *Bottle Cider* is, that it *mantle* a little and *ſparkle* when it is put out into the Glaſs; but if it *froth* and *fly*, it was *bottled* too ſoon. Now the *Temper* of the *Cider* is ſo nice, that it is very hard when you *bottle* it, to foretel which of theſe two Conditions it will have: But it is very eaſy within a few Days after (that is to ſay, about a Week or ſo) to find its *Temper* as to this Point. For firſt, if it be *bottled* too ſoon, by this time it will begin to *ferment* in the *Bottles*; and in that caſe you muſt open the *Bottles*, and let them ſtand open two or three minutes, that that abundance of *Spirits* may have *vent*, which otherwiſe kept in would in a ſhort time make it of that Sort I called before *Pot-gun-drink*; but being let out, that Danger will be avoided, and the *Cider* (without danger of breaking the *Bottles*) will *keep* and *ferment*, but not too much. Now this is ſo eaſy a *Remedy*, that I would adviſe all Men rather to err on the hand of bottling it too ſoon, than let it be too *fine* when they *bottle* it; for if ſo, it will not *fret* in the *Bottle* at all, and conſequently want that *Briskneſs* which is deſirable. Yet

Yet even in this Caſe there is a Remedy, but ſuch a one as I am always very careful to avoid, that ſo I may have nothing (how little ſoever) in the *Cider* but the *Juice* of the *Apple:* But the Remedy is, in caſe you be put to a Neceſſity to uſe it, That you open every *Bottle*, after it hath been *bottled* about a Week or ſo, and put into each *Bottle* a little piece of white *Sugar*, about the Bigneſs of a *Nutmeg*; and this will ſet it into a little *Fermentation*, and give it that *Briskneſs* which otherwiſe it would have wanted. But the other way being full as eaſy, and then nothing to be added but the Juice of the *Apple* to be ſimply the Subſtance of your *Cider*, I chuſe to prefer the Error of being in danger to *bottle* the *Cider* too ſoon, rather than too late: Nay, ſometimes in the *bottling* of one and the ſame Hogſhead (or other Veſſel) of *Cider*, there may the firſt part of it be too *fine*, the ſecond part *well*, and the laſt not *fine* enough: And this happens when it is broach'd firſt *above* the *Middle*, and then *below*; and then when it begins to run low, *tilted* or raiſed at the further End, and ſo all drawn out. But to avoid this Inconvenience, I commonly ſet the *Bottles* in the order they were filled, and ſo we need not open all to ſee the Condition of the *Cider*; but trying one at each end, and one in the middle, will ſerve the turn. And to prevent the Inconveniency, *broach* not at all above the *middle*, nor too *low*; and when you have drawn all that will run at the *Tap*, you may be ſecure it is ſo far of the ſame *Temper* with the firſt *Bottle*. And then *tilt* the Veſſel; but draw no more in three or four hours at the leaſt after, and ſet them by themſelves, that ſo, if you pleaſe, you may three or four days after pour them off into other *Bottles*, and leave the *Groſs* behind: And by this means, though you have a leſs Number of Bottles of *Cider* than you had, yet this will continue good, and neither be apt to *fly*, nor have a Sediment in the *Bottle*, which after the firſt Glaſs is filled will render all the reſt of the *Bottle* thick and muddy.

By all this which I have ſaid, I think it may be made out, that thoſe Perſons which I mentioned in the End of the laſt Paragraph, that ſometimes had *Pippin-Cider* better than ordinary, and indeed than they could make again, were beholding to Chance for it; either that their *Apples* were not ſo full ripe at that, as at *other* times, and ſo not bruiſed into ſo ſmall Parts; but the *Fermentation* was ended in the Veſſel, and the *Lee* being then *gooſs*, ſettled before the *Cider* had *fermented* ſo long as to be hard.

Or elſe, by ſome Accident, they had not put it ſo ſoon into the Veſſel, but that in part it was ſettled before they put it up, and the groſſeſt Part of the *Lee* left out of the Veſſel.

Or elſe, the *Bung* being left open, ſome Part of the Spirits evaporated; and that made the *Fermentation* the weaker, and to laſt the leſs time.

Or elſe they put it up in ſuch a Seaſon, that the Weather continued *cold* and *froſty* till the *Fermentation* was quite over; and then it having wrought the leſs time, and with the leſs Violence, it remained more pleaſant and rich than otherwiſe it would have done.

Now for the *Time* of making *Pippin-Cider*, I chuſe to do it in the Beginning of *November*, after the *Apples* had been gather'd and laid about three Weeks or more in the *Loft*, that ſo the *Apples* might have had a little time to *ſweat* in the Houſe before the *Cider* was made, but not too much; for if they be not full ripe before they be *gathered*,

and not ſuffered to lie a while in the *Heap*, the *Cider* will not be ſo pleaſant; and if they be *too ripe* when they are *gathered*, or lie too long in the *Heap*, it will be very difficult to ſeparate the *Cider* from the *groſs Lee* before the *Fermentation* begins: And in that caſe it will work ſo long, that when it *fines*, the *Cider* will be *hard*; for when the *Apples* are too *mellow*, they break into ſo ſmall *Particles*, that it will be long before the *Lee* ſettles by its Weight only; and then the *Fermentation* may begin before it be *ſeparated*, and ſo deſtroy your Intention of taking away the *groſs Lee*. And if the *Apples* be not *mellow* enough, the *Cider* will not be ſo pleaſant as it ought to be.

This being ſaid for the Time of making the *Pippin-Cider*, may (*mutatis mutandis*) ſerve for all other Sorts of *Summer-Fruit*; as the *Kentiſh-Codlin*, *Marigolds*, *Gilly-flowers*, *Summer-Pearmains*, *Summer-Pippins*, *Holland-Pippins*, *Golden-Pippins*, and even *Winter-Pearmains*. For though they muſt not be made at the ſame *Time* of the *Year*, yet they muſt be made at the time when each reſpective Fruit is in the ſame Condition that I before directed that the *Winter-Pippin* ſhould be. Nay, even in the making of that *Cider*, you are not tied to that time of the *Year* to make your *Cider*; but as the Condition of that particular *Year* hath been, you may make your *Cider* one, two, three, or four Weeks later; but it will be very ſeldom that you ſhall need to begin to make *Kentiſh-Pippin Cider* before the Beginning of *November*, even in the moſt *Southern* Parts of *England*.

The next thing I ſhall mention, is the ordering of your *Bottles* after they are filled; for in that conſiſts no ſmall Part of cauſing your *Cider* to be in a juſt Condition to *drink*: For if it does *ferment* too much in the *Bottle*, it will not be ſo convenient to *drink*, neither for the Taſte nor Wholſomeneſs; and if it *ferment* not at all, it will want that little *Fret* which makes it *grateful* to moſt Palates. In order to this you muſt obſerve, Firſt, Whether the *Cider* were *bottled* too early, or too late, or in the juſt time: If too early, and that it hath too much of the *flying Lee* in it, then you muſt keep it as cool as you can, that it may not work too much; and if ſo little that you doubt it will not work at all, or too little, you muſt, by keeping it from the Inconvenience of the external Air, endeavour to haſten and increaſe the *Fermentation*. And this I do, by ſetting it in Sand to cool, and by covering the *Bottles* very well with Straw, when I would haſten or increaſe the *Fermentation*.

And if I find the *Cider* to have been *bottled* in its juſt time, then I uſe *neither* in ordinary Weather; but content myſelf that it ſtands in a cloſe and cool *Cellar*, either upon the Ground, or upon Shelves; ſaving in the time that I apprehend *Froſt*, I cover it with Straw, which I take off as ſoon as the Weather changeth; and conſequently about the time that the cold *Eaſt Winds* ceaſe, which uſually with us is in the Beginning of *April*, I ſet my *Bottles* into Sand up to the Necks. And by this means I have kept *Pippin-Cider* without Change till *September*, and might have kept it longer, if my Store had been greater: For by that time the Heats were totally over, and conſequently the *Cauſe* of the *Turn* of *Cider*.

Having now declared what is (according to my Opinion) to be done to preſerve *Cider*, if not in its original Sweetneſs, yet to let it loſe as little as is poſſible; I ſhall now fall upon my *fifth Aſſertion*, which is, That it is probable that ſomewhat like the former Method may, in

ſome degree, mend *Hard-Apple Cider*, *Perry*, or a Drink made of the Mixtures of *Apples* and *Pears*; and not impoſſible that ſomewhat of the ſame Nature may do good to *French* Wines alſo.

Firſt, for *French* Wines, I think what I have in the Beginning of this *Diſcourſe* declared, as the Hint which firſt put me upon the Conceit, that the over-*fermenting* of *Cider* was the Cauſe that it loſt its original Sweetneſs, (*viz.* the making of *three* Sorts of *Wine* of *one* Sort of *Grapes*) is a Teſtimony that the firſt Sort of *Wine* hath but little of the *groſs Lee*, and conſequently *ferments* but little, nor loſeth but little of the original Sweetneſs; which makes it evident that the ſame thing will hold in *Wine*, which doth in *Cider*: but the great Difficulty is, (if I be rightly inform'd) that they uſe to let the *Wine* begin to *ferment* in the *Vat* before they put it into the Hogſheads, or other Veſſels; and thus they do, that the *Husks* and other *Filth* (which in the way they uſe muſt neceſſarily be mingled with the *Wine*) may riſe in a *Scum* at the top, and ſo be taken off: Now if they pleaſe, as ſoon as it is *preſſed*, to paſs the *Wine* through a *Strainer* without expecting any ſuch *Purgation*, and then uſe the ſame *Method* formerly preſcrib'd for *Cider*, I do not doubt but the groſs Part of the *Lee* of *Wines* being thus taken away, there will yet be enough left to give it a *Fermentation* in the *Bottles*, or ſecond *Veſſel*, where it ſhall be left to ſtand, in caſe you have not Bottles enough to put up all the *Wine* from which you have thus taken away the *groſs Lee*.

This *Wine* I know not whether it will laſt ſo long as the other uſed in the ordinary way, or not; but this I confidently believe, it will not be ſo harſh as the ſame would have been, if it had been uſed in the ordinary way; and the Pleaſantneſs of *Taſte*, which is not unwholſome, is the chief thing which I prefer both in *Wine* and *Cider*.

Now for the *Hard-Apple Cider*, that it will receive an Improvement by this way of ordering, hath been long my Opinion; but this Year an Accident happen'd, which made it evident that I was not miſtaken in this Conjecture. For there was a *Gentleman* of *Herefordſhire*, this laſt *Autumn*, that by accident had not provided *Cask* enough for the *Cider* he had made; and having ſix or ſeven *Hogſheads* of *Cider* for which he had no *Cask*, he ſent to *Worceſter*, *Gloceſter*, and even to *Briſtol*, to buy ſome, but all in vain; and when his *Servants* returned, the *Cider* that wanted *Cask* had been ſome five Days in the *Vat* uncovered; and the *Gentleman* being then diſpatching a *Bark* for *London* with *Cider*, and having near hand a Conveniency of getting *Glaſs-Bottles*, reſolved to put ſome of it into *Bottles*; did ſo, and filled ſeven or eight Hampers with the cleareſt of this *Cider* in the *Vat*, which had then never wrought, nor been put into any other Veſſel but the *Vat*; the *Bark* in which his *Cider* came had a tedious Paſſage; that is, it was at leaſt ſeven Weeks before it came to *London*, and in that time moſt of his *Cider* in *Cask* had wrought ſo much, that it was much harder than it would have been, if it had, according to the ordinary way, lain ſtill in the Country, in the Place where it was firſt made and put up, and conſequently wrought but once.

But the other which was in *Bottles*, and eſcaped the breaking, that is, by Accident, had leſs of the *Lee* in it than other *Bottles* had, or was not ſo hard ſtopped, but either before there was Force enough from

from the *Fermentation* to break the *Bottle*, or that the *Cork* gave way a little, and ſo the *Air* got out, or that the *Bottles* were not originally well *cork'd*, was excellent good, beyond any *Cider* that I had taſted out of *Herefordſhire*. So that from this *Experience* I dare confidently ſay, that the uſing *Hard-Apple-Cider* after the former *Method* preſcribed for *Pippin-Cider*, will make it retain a conſiderable Part of Sweetneſs more than it can do after the *Method* uſed hitherto in *Herefordſhire*. Nor do I doubt but my *Method* will in a Degree have the ſame Effect in *Perry*, and the Drink (as yet without a Name that I do know of) which is made of the *Juice* of *Wardens*, *Pears*, and *Apples*, by ſeveral Perſons, in ſeveral Proportions; for the *Reaſon* being the ſame, I have no Cauſe to doubt, but the *Effect* will follow, as well in thoſe *Drinks* as in *Cider* and *Wines*.

I am now come to my laſt *Aſſertion*; That *Cider* thus uſed cannot be *unwholſome*, but may be done to what degree any Man's *Palate* deſires.

Firſt, It cannot be *unwholſome* upon the ſame Meaſure that *ſtummed Wine* is ſo; for that unwholſomeneſs is by leaving the Cauſe of *Fermentation* in the *Wine*, and not ſuffering it to produce its *Effect* before the *Wine* be drank, and it ferments in Man's Body; and not only ſo, but ſets other *Humours* in the Body into *Fermentation*; and this prejudiceth their *Health* that drink ſuch *Wines*.

Now though *Cider* uſed in my *Method* ſhould not *ferment* at all, till it come into the *Bottle*, and then but a little; yet the Cauſe of *Fermentation* being in a great Degree taken away, the reſt can do no conſiderable Harm to thoſe which drink it, being in it ſelf but little, and having wrought in the *Bottle* before Men drink it; nor indeed do I think, nor ever find, that it did any Inconvenience to my ſelf, or any Perſon that drank it when it was thus uſed.

Secondly, Becauſe the Difference of Men's *Palates* and *Conſtitutions* is very great; and that accordingly Men like or diſlike Drink, that hath more or leſs of the *fret* in it; and that the Conſequences in Point of Health, are very different, in the *Method* by me formerly preſcribed: It is in your *Power* to give the *Cider* juſt as much *fret* as you pleaſe, and no more; and that by ſeveral ways: For either you may *bottle* it ſooner or later, as you pleaſe: Or you may *bottle* it from two *Taps* in your *Veſſel*, and that from the *higher* Tap will have leſs *Fret*, and the *lower* more: Or you may *bottle* your *Cider* all from one *Tap*, and open ſome of the *Bottles* about a Week after for a few *Minutes*, and then ſtop them up again; and that which was thus ſtopp'd will have the leſs *Fret:* Or if your *Cider* be *bottled* all from one *Tap*, if you will (even without opening the *Bottles*) you may make ſome Difference, though not ſo conſiderable as either of the former ways, by keeping part of the *Bottles* warmer, for the firſt two *Months*, than the reſt; for that which is kept warmeſt will have the moſt *Fret*.

Sir

Sir Paul Neile's *Second* PAPER.

My Lord,

THE Paper which, by the Command of the *Royal Society*, I delivered in laſt Year, concerning the ordering of *Cider*, I have, by this Year's Experience, found defective in one Particular, of which I think fit by this to give you Notice; which is thus. Whereas in the former *Paper* I mention, that after the *Pippin-Cider* hath ſtood twenty-four Hours in the *Vat*, it might be drawn off into Pails, and ſo put into the Veſſel; and that having ſtood a ſecond Twenty-four Hours in that Veſſel, it might be drawn into another Veſſel, in which it might ſtand till it were fit to *Bottle*; for the Particulars of all which Proceeding I refer to the former Paper; and ſhall now only mention, that this laſt Year we are fain to draw it off into ſeveral Veſſels, not only as is there directed, *twice*, but moſt of our *Cider* Five, and ſome *Six* times; and not only ſo, but we were, after all this, fain to *precipitate* the *Lee* by ſome of thoſe ways mentioned by Dr. *Willis* in the 7th *Chap.* of his Treatiſe *De Fermentatione*. Now, though this be more of Trouble than the Method by me formerly mentioned; yet it doth not in the leaſt deſtroy that *Hypotheſis* which in the former Diſcourſe I laid down, (*viz.*) that it was the leaving too much of the *Lee* with the *Cider*, which upon the change of Air, ſet it it into a new *Fermentation*, and conſequently made it loſe the Sweetneſs; for this Change, by the Indiſpoſition of the *Lee* to ſettle this Year more than others, hath not hindered the Goodneſs of the *Cider*; but that when it was at laſt maſter'd, and the *Cider* bottled in a fit Temper, it was never more pleaſant and quick than this Year; but I find that this Year our *Cider* of Summer-Apples is already turned ſowre, although it be now but the firſt of *January*; and the laſt Year it kept very well till the beginning of *March*; which makes me fear that our *Pippin-Cider* will not keep till this time Twelvemonth, as our *Pippin-Cider* of the laſt Year doth till this Day, and ſtill retains its original Pleaſantneſs, without the leaſt turn towards Sowreneſs.

And I am very confident, the Difference of Time and Trouble, which this Year we found in getting the *Cider* to *fine*, and be in a Condition to Bottle, was only the Effect of a very bad and wet Summer, which made the Fruit not ripen kindly; and to make it yet worſe, we had juſt at the Time when we made our *Cider* this Year, extream wet and windy Weather, which (added to the Unkindlineſs of the Fruit) was the whole Cauſe of this Alteration: And however, my *Hypotheſis* as yet remains firm; for if by taking any Part of the *Lee* from the *Cider*, you can preſerve it in its original Sweetneſs, it is not at all material whether it be always to be done by twice drawing off from the *Lee*, or that it muſt ſometimes be done with more Trouble, and by often repeating the ſame Work, ſo that finally it be done, and by the ſame Means, that is, by taking away part of the *Lee*, which

otherwiſe would have cauſed too much *Fermentation*; and conſequently have made the *Cider* loſe part of its original Sweetneſs.

My Lord, I ſhould not have preſumed to have given you and the *Society* the Trouble of peruſing this Paper, but that, if poſſible, I would have you ſee, that what I think an Error in any Opinion that I have held, I am willing to own; and yet I deſire not that you ſhould think my Miſtake greater than in Reality it is.

Obſervations concerning the Making and Preſerving of CIDER.

By *JOHN NEWBURGH*, Eſq;

1. IF the *Apples* are made up immediately from the *Tree*, they are obſerv'd to yield *more*, but not ſo *good* Cider, as when *hoarded* the ſpace of a Month or ſix Weeks; and if they contract any unpleaſing Taſte (as ſometimes 'tis confeſs'd they do) it may be imputed to the Room they lie in, which if it hath any thing in it, of either too ſweet or unſavoury Smell, the *Apples* (as Things moſt ſuſceptible of Impreſſion) will be eaſily tainted thereby.

One of my Acquaintance, when a Child, hoarding *Apples* in a Box where *Roſe-Cakes* and other Sweets were their Companions, found them of ſo unſavoury Taſte, and of ſo rank a Reliſh, deriv'd from the too near Neighbourhood of the Perfumes, that even a childiſh Palate (which ſeldom miſlikes any Thing that looks like an *Apple*) could not diſpenſe with it.

2. It is therefore obſerv'd by prudent *Fruiterers*, to lay their *Apples* upon clean new made *Reed*, till they grind them for *Cider*, or otherwiſe make Uſe of them. And if, notwithſtanding this Caution, they contract any Rottenneſs before they come to the *Cider-preſs*, the Damage will not be great, if Care be had before the *Apples* be ground, to pick out the finnewed and the black-rotten; the reſt, though ſomewhat of Putrefaction hath paſs'd upon them, will not render the *Cider* ill-condition'd, either in reſpect of Taſte or Duration.

A Friend of mine having made Proviſion of *Apples* for *Cider*, whereof ſo great a Part were found rotten when the Time of grinding them came, that they did, as 'twere, waſh the Room with their Juice, through which they were carried to the *Wring*, had *Cider* from them not only paſſable, but exceeding good; though not without previous Uſe of the pre-mention'd Caution. I am alſo aſſured by a Neighbour of mine, that a Brother of his who is a great *Cider-Merchant* in *Devonſhire*, is, by frequent Experience, ſo well ſatisfied with the Harmleſneſs of *Rotten-Apples*, that he makes no Scruple of exchanging with any one that comes to his *Cider-Preſs*, a Buſhel of *Sound-Apples* for the ſame Meaſure of the other. Herein, I ſuppoſe,

(if in other reſpects they are not prejudicial) he may be a Gainer by the near Compreſſion of the tainted Fruit, which, as we ſpeak in our Country Phraſe, will go nearer together than the other. His Advantage may be the greater, if the Conceit which goes current with them be not a bottomleſs Fancy, That a convenient Quantity of *rotten Apples* mix'd with the *ſound*, is greatly aſſiſtant to the Work of *Fermentation*, and notably helps to clarify the *Cider*.

3. It matters not much whether the *Cider* be forc'd to purge itſelf by working downwards in the Barrel, or upwards at the uſual Vent, ſo there be Matter ſufficient left on the top for a thick Skin or Film, which will ſometimes be drawn over it when it works, after the uſual manner, as when 'tis preſently ſtopp'd up with ſpace left for *Fermentation*, to be perform'd altogether within the Veſſel.

The thick Skin, or *Leathern-Coat*, the *Cider* oftentimes contracts, as well after it hath purged itſelf after the uſual manner, as otherwiſe, is held the ſureſt Preſervation of its *Spirits*, and the beſt Security againſt other Inconveniences incident to *this*, and other like *vinous* Liquors; of which the *Devonſhire Cider-Merchants* are ſo ſenſible, that, beſide the particular Care they take, that matter be not wanting for the Contexture of this upper Garment by ſtopping up the Veſſel as ſoon as they have fill'd it, (with the allowance of a Gallon or two upon the ſcore of *Fermentation*) they caſt in Wheaten Bran, or Duſt, to thicken the Coat, and render it more certainly Air-proof. And I think you will believe their Care in this kind not impertinent, if you can believe a Story which I have to tell of its marvellous Efficacy: A near Neighbour of mine aſſures me, that his Wife having this Year filled a Barrel with *Mead*, being ſtrong, it wrought ſo boiſterouſly in the Veſſel, that the good Woman caſting her Eye that way accidentally, found it leaking at every Chink, which aſcribing to the Strength of the Liquor, ſhe thought immediately by giving it vent, to ſave both the Liquor and the Veſſel, but in vain; both the Stopples being pulled out, the Leakage ſtill continued, and the Veſſel not at all reliev'd, till caſually at length putting in her Finger at the top, ſhe brake the prementioned Film; which done, a good part of the *Mead* immediately flying out, left the reſidue in peace, and the Leakage ceaſed. It may ſeem incredible, that ſo thin a Skin ſhould be more coercive to a mutinous Liquor, than a Barrel with Oaken-Ribs, and ſtubborn Hoops: But I am ſo well aſſur'd of the Veritableneſs of my Neighbour's Relation, that I dare not queſtion it: The Reaſon of it let wiſer Men determine.

4. If the *Apples* be abortive, having been (as it uſually happens) ſhaken down before the time by a violent Wind, it is obſerv'd to be ſo indiſpenſibly neceſſary, that they lye together in hoard, at leaſt, till the uſual time of their Maturity, that the *Cider* otherwiſe is ſeldom or never found worth the drinking.

A Neighbour told me, that making a Quantity of *Cider* with *Windfalls*, which he let ripen in the Hoard, near a Month interceding between the time of their Decuſſion, and that which Nature intended for their Maturity; his *Cider* prov'd very good, when all his Neighbours, who made up their untimely Fruit as ſoon as it fell, had a crude, auſtere, indigeſted Liquor, not worth the Name of *Cider*.

5. No Liquor is obſerved to be more eaſily affected with the Savour of the Veſſel it is put into, than *Cider*; therefore ſingular Care is taken

ken by diſcreet *Cider-Maſters*, that the Veſſel be not only *taſteleſs*, but alſo well prepared for the *Liquor* they intend to fill it with. If it be a new *Cask*, they prepare it by ſcalding it with Water, wherein a good Quantity of *Apple-pomice* hath been boil'd: If a tanited *Cask*, they have divers ways of cleanſing it. Some boil an Ounce of Pepper in ſo much Water as will fill an *Hogſhead*, which they let ſtand in a Veſſel of that Capacity two or three Days, and then waſh it with a convenient Quantity of freſh Water ſcalding hot, which, they ſay, is an undoubted Cure for the moſt dangerouſly infected Veſſel. A Friend and Neighbour of mine herewith cured a Veſſel of ſo extreme ill Savour, as it was thought it would little leſs than poiſon any Liquor that was put into it. Others have a more eaſy, and perhaps no leſs effectual Remedy. They take two or three Stones of Quick-Lime, which, in ſix or ſeven Gallons of Water, they ſet on work in the *Hogſhead*, being cloſe ſtopp'd, and tumbling it up and down till the Commotion ceaſe, it doth the feat. Of Veſſels that have been formerly uſed, next to that which hath been already acquainted with *Cider*, a *White-Wine*, or *Vinegar-Cask*, is eſteem'd the beſt; *Claret* or *Sack* not ſo good. A Barrel newly tenanted by *Small-Beer* ſuits better with *Cider* than a *Strong-Beer* Veſſel.

6. Half a Peck of unground Wheat put to *Cider* that is harſh and eager, will renew its *Fermentation*, and render it more mild and gentle. Sometimes it happens without the Uſe of any ſuch means to change with the Seaſon, and becomes of *ſharp* and *ſowre* unexpectedly *benign* and *pleaſant*. Two or three *Eggs* whole put into an *Hogſhead* of *Cider* that is become ſharp and near of kin to *Vinegar*, ſometimes rarely lenifies and gentilizes it. One Pound of *broad Figs* ſlit, is ſaid to dulcify an *Hogſhead* of ſuch *ider*.

A Neighbour *Divine* of my Acquaintance aſſured me, that coming into a *Parſonage-houſe* in *Devonſhire*, where he found eleven *Hogſheads* of *Cider*; being unwilling to ſell what he never bought, he was three Years in ſpending that Store which the former *Incumbent* had left him; and it greatly amus'd him (as well it might, if he remember'd the old *Proberb*, *He mends as ſowre Ale in Summer*) to find the ſame *Cider*, which in *Winter* was almoſt as ſharp as *Vinegar*, in the *Summer* become a potable, and a good-natur'd Liquor.

7. A little Quantity of *Muſtard* will clear an *Hogſhead* of muddy *Cider*. The ſame Virtue is aſcribed to two or three *rotten Apples* put into it. *Muſtard* made with *Sack* preſerves boil'd *Cider*, and ſpirits it egregiouſly.

8. *Cider* is found to *ferment* much better in mild and moiſt, than in cold and dry Weather. Every one's Experience hath taught him ſo much in the late froſty Seaſon. If it had not wrought before, it was in vain to expect its working or clearing then, unleſs by ſome of the artificial Means premention'd, which alſo could not be made uſe of in a more inconvenient time.

9. The latter running of the *Cider* bottled immediately from the *Wring*, is by ſome eſteem'd a pure, clear, ſmall, well-reliſh'd Liquor; but ſo much undervalued by them who deſire ſtrong Drinks more than *wholſome*, that they will not ſuffer it to incorporate with the firſt running.

In *Devonſhire*, where their *Wrings* are ſo hugely great, that an *Hogſhead* or two runs out commonly before the *Apples* ſuffer any con-

ſiderable Preſſure, they value this before the other, much after the rate which we ſet upon *Live-Honey* (that which in like ſort drops freely out of the Combs) above that which renders not itſelf without *Compreſſion*. In *Jerſey* they value it a Crown upon an *Hogſhead* dearer than the other. (This I take from the Relation of one of my Neighbours, who ſometimes lived in that *Iſland*, which, for *Apples* and *Cider*, is one of the moſt famous of all belonging to his Majeſty's Dominions:) Yet even upon *this*, and their choiceſt *Ciders*, they commonly beſtow a *Pail* of *Water* to every *Hogſhead*; being ſo far (it ſeems) of *Pindar*'s Mind, that they fear not any Prejudice to their moſt excellent *Liquors* by a daſh of that moſt excellent *Element*: Inſomuch that it goes for a common Saying amongſt them, That if any *Cider* can be found in their *Iſland*, which can be prov'd to have no Mixture of *Water*, 'tis clearly forfeited. It ſeems they are ſtrongly conceited, that this Addition of the moſt uſeful *Element* doth greatly meliorate their *Cider*, both in reſpect of *Colour*, *Taſte*, and *Clarity*.

10. The beſt *Cider-Fruit* with us in this Part of *Dorſetſhire* (lying near *Bridport*) next to *Pippin* and *Pearmain*, is a *Bitter-ſweet*, or (as we vulgarly call them) *Bitter-ſcale*; of which for the firſt, the *Cider* unboil'd keeps well for one Year; boiling it, you may keep it two Years, or longer.

About ſeven Years ſince, I gave myſelf the Experience of *Bitter-ſcale-Cider* both crude and boil'd. I call'd them both to account at twelve Months end. I then found the *crude Cider* ſeemingly as good, if not better, than the *boil'd*. But, having ſtopp'd up the *boil'd*, I took it to task again about ten Months after. At which time I found it ſo exceſſively ſtrong, that five Perſons would hardly venture upon an ordinary Glaſs full of it. My Friends would hardly believe but that I had heightned it with ſome of my *Chymical Spirits*. The Truth is, I do not remember that I ever drunk any Liquor, on this ſide *Spirits*, ſo highly ſtrong and ſpirituous; but wanting Pleaſantneſs anſwerable to its Strength, I was not very fond of my *Experiment*: In which I boil'd away, as I remember, more than half.

11. A Neighbour having a good Provent of *pure Lings* (an *Apple* of choice account with us) making up a good part of them to *Cider*, expected rare Liquor; but it prov'd very mean and pitiful *Cider*, as generally we find that to be, which is made without Mixture. We have few *Apples* with us, beſide the *Bitter-ſcale*, which yield good *Cider* alone; next to it is a *Deans-Apple*, and the *Peleaſantine*, I think, may be mention'd in the third place; neither of which need the Addition of other *Apples* to ſet off the Reliſh, as do the reſt of our choiceſt Fruits. *Pippins*, *Pearmains*, and *July-flowers* commixt, are ſaid to make the beſt *Cider* in the World. In *Jerſey* 'tis a general Obſervation, as I hear, That the more of Red any *Apple* hath in its Rind, the more proper it is for this Uſe. *Pale-fac'd Apples* they exclude as much as may be from their *Cider-Vat*. 'Tis with us an Obſervation, That no *ſweet Apple* that hath a tough Rind is bad for *Cider*.

12. If you *boil* your *Cider*, ſpecial Care is to be had that you put it into the *Furnace* immediately from the *Wring*; otherwiſe if it be let ſtand in *Vats* or *Veſſels* two or three Days after the Preſſure, the beſt and moſt *ſpirituous* Part will aſcend and vapour away when the Fire is put under it; and the longer the *boiling* continues, the leſs of Goodneſs or Virtue will be left remaining in the *Cider*.

My

My *Diſtillations* ſufficiently inſtruct me, That the ſame *Liquor* which (after *fermentation* hath paſs'd upon it) yields a plentiful quantity of *Spirit*, drawn off unfermented, yields nothing at all of *Spirit*. And upon the ſame account it is undoubtedly certain, That *Cider* boil'd immediately from the *Wring*, hath its *Spirits* compreſt, and drawn into a narrower compaſs, which are for the moſt part waſh'd and evaporated by late unſeaſonable boiling.

Concerning CIDER. By Dr. *Smith*.

THE beſt time to *grind* the *Apples* is immediately from the *Tree*, ſo ſoon as they are throughly ripe; for ſo they will yield the greater quantity of *Liquor*, the *Cider* will drink the better, and laſt longer, than if the *Apples* were hoarded: For *Cider* made of hoarded *Apples* will always retain an unpleaſing Taſte of the *Apples*, eſpecially if they contract any rottenneſs.

The *Cider* that is ground in a *Stone-caſe* is generally accuſed to taſte unpleaſantly of the *Rinds*, *Stems*, and *Kernels* of the *Apples*; which it will not if ground in a *Caſe* of *Wood*, which doth not bruiſe them ſo much.

So ſoon as the *Cider* is made, put it into the *Veſſel* (leaving it about the ſpace of one *Gallon* empty) and preſently ſtop it up very cloſe: This way is obſerved to keep it longer, and to preſerve its *Spirits* better than the uſual way of filling the Veſſel quite full, and keeping it open till it hath done *fermenting*.

Cider put into a new Veſſel, will often taſte of the *Wood*, if it be pierced early; but the ſame ſtopped up again, and reſerved till the latter end of the Year, will free itſelf of that Taſte.

If the *Cider* be ſharp and thick, it will recover itſelf again: But if ſharp and clear, it will not.

About *March*, (or when the *Cider* begins to ſparkle in the Glaſs) before it be too fine, is the beſt time to bottle it.

Cider will be much longer in clearing in a mild and moiſt, than in a cold and dry *Winter*.

To every *Hogſhead* of *Cider*, deſigned for two Years keeping, it is requiſite to add (about *March* the firſt Year) a Quart of *Wheat* unground.

The beſt *Fruit* (with us in *Glouceſterſhire*) for the firſt Year's *Cider*, are the *Red-ſtrake*; the white and red *Muſt-Apple*, the ſweet and ſowre *Pippin*, and the *Harvy-Apple*.

Pearmains alone make but a ſmall Liquor, and hardly clearing of itſelf; but mixed either with ſweet or ſowre *Pippins*, it becomes very brisk and clear.

Muſt-Apple-Cider (though the firſt made) is always the laſt ripe; by reaſon that moſt of the *Pulp* of the *Apple* paſſeth the *Strainer* in preſſing, and makes it exceeding thick.

The *Cider* of the *Bromsbury-crab*, and *Fox-whelp*, is not fit for drinking, till the *ſecond Year*, but then very good.

The *Cider* of the *Bromsbury-crab* yields a far greater proportion of *Spirits*, in the diſtillation, than any of the others.

Crabs and *Pears* mixed, make a very pleaſing Liquor, and much ſooner ripe than *Pears* alone.

Of CIDER. By Captain *Sylas Taylor.*

Herefordſhire affords ſeveral ſorts of *Cider-Apples*, as the two ſorts of *Red-ſtrakes*, the *Gennet-moyle*, the *Summer-violet*, or *Fillet*, and the *Winter-fillet*; with many other ſorts which are uſed only to make *Cider*. Of which ſome uſe each ſort *ſimply*; and others *mix* many ſorts together. This *Country* is very well ſtored with other ſorts of *Apples*; as *Pippins*, *Pearmains*, &c. of which there is much *Cider* made, but not to be compared to the *Cider* drawn from the *Cider-Apples*; among which the *Red-ſtrakes* bear the Bell; a *Fruit* in itſelf ſcarce *edible*; yet the *Juice* being preſſed out, is immediately pleaſant in Taſte, without any thing of that *reſtringency* which it had when incorporated with the *Meat*, or *fleſh* of the *Apple*. It is many times *three Months* before it comes to its *clearneſs*, and *ſix Months* before it comes to a ripeneſs fit for *drinking*; yet I have taſted of it *three Years old*, very pleaſant, though dangerouſly ſtrong. The *colour* of it, when *fine*, is of a ſparkling *yellow*, like *Canary*, of a good full Body, and *oily*: The *Taſte*, like the *Flavour* or *Perfume* of excellent *Peaches*, very grateful to the *Palate* and *Stomach*.

Gennet-moyles make a *Cider* of a ſmaller Body than the former, yet very pleaſant, and will laſt a *year*. It is a good eating pleaſant ſharp Fruit, when ripe, and the beſt *Tart-Apple* (as the *Red-ſtrake* alſo) before its ripeneſs. The *Tree* grows with certain knotty *extuberancies* upon the *branches* and *boughs*; below which *knot* we cut off boughs the thickneſs of a Man's *wriſt*, and place the knot in the ground, which makes the *root*; and this is done to raiſe this *fruit*; but very rarely by *graffing*.

Of *Fillets* of both ſorts (*viz.* Summer and Winter) I have made *Cider* of that proportionate taſte and ſtrength, that I have deceived ſeveral experienced *Palates*, with whom (ſimply) it hath paſſed for *White-Wine*; and *daſhing* it with *Red-Wine*, it hath paſſed for *Claret*; and mingled with the *Syrup* of *Raſp'yes* it makes an excellent *Womans wine*: The fruit is not ſo good as the *Gennet-moyle* to eat: The *Winter-fillet* makes a *laſting Cider*, and the *Summer-fillet* an *early Cider*, but both very ſtrong; and the *Apples* mixt together make a good *Cider*.

Theſe *Apples* yield a *Liquor* more grateful to my *Palate* (and ſo eſteem'd of in *Herefordſhire* by the greater *Cideriſts*) than any made of *Pippins* and *Pearmains*; of which Sorts we have very good in that *Country*; and thoſe alſo both *Summer* and *Winter* of both Sorts, and of which I have drank the *Cider*; but prefer the other.

Grounds ſeparated only with a *Hedge* and *Ditch*, by reaſon of the difference of *Soils*, have given a great Alteration to the *Cider*, notwithſtanding

withſtanding the Trees have been graffed with equal Care, the ſame *Graffs*, and laſtly, the ſame Care taken in the making of the *Cider*. This as to the *Red-ſtrake*; I have not obſerv'd the ſame *Niceneſs* in any other *Fruit*; for *Gennet-moyles* and *Fillets* thrive very well over all *Herefordſhire*. The *Red-ſtrake* delights moſt in a fat Soil: *Hamlacy* is a rich intermix'd Soil of *Red-fat-clay* and *Sand*; and *Kingscapel* a low hot ſandy Ground, both well defended from noxious *Winds*, and both very famous for the *Red-ſtrake-Cider*.

There is a *Pear* in *Hereford* and *Worceſterſhires*, which is called *Bareland-Pear*, which makes a very good *Cider*. I call it *Cider* (and not *Perry*) becauſe it hath all the *Properties* of *Cider*. I have drank of it from half a Year old to two Years old. It keeps it ſelf without *Roping* (to which *Perry* is generally inclin'd;) and from its Taſte, Dr. *Beal*, in his little *Treatiſe*, called the *Herefordſhire-Orchard*, calls it deſervingly a *Maſculine Drink*; becauſe in Taſte not like the ſweet *luſcious Feminine* Juice of *Pears*. This *Tree* thrives very well in barren Ground, and is a Fruit (with the *Red-ſtrake*) of which *Swine* will not eat; therefore fitteſt to be planted in Hedge-rows.

Red-ſtrake and other *Cider-Apples*, when ripe (which you may know partly by the blackneſs of the *Kernels*, and partly by the *Colour* and *Smell* of the Fruit) ought to be gathered in *Baskets* or *Bags*, preſerved from bruiſing, and laid up in Heaps in the *Orchard* to *Sweat*; covered every Night from the *Dew*: Or elſe in a *Barn-floor* (or the like) with ſome *Wheat* or *Rye-ſtraw* under them, being kept ſo long, till you find, by their *Mellowing*, they are fit for the *Mill*.

They that grind, or bruiſe their *Apples* preſently upon their *Gathering*, receive ſo much *Liquor* from them, that between *twenty* or *twenty two Buſhels* will make a *Hogſhead* of *Cider*: But this *Cider* will neither keep ſo well, nor *drink* with ſuch a *Fragrancy* as is deſired and endeavoured.

They that keep them a *Month* or *ſix Weeks* hoarded, allow about *thirty Buſhels* to the making of a *Hogſhead*; but this hath alſo an Inconvenience; in that the *Cider* becomes not *fine*, or fit for drinking, ſo conveniently as a *Mean* betwixt theſe two will afford.

Keep them then about a *Fortnight* in a *Hoard*, and order them to be of ſuch a *Caſt* by this *Mellowing*, that about *Twenty five Buſhels* may make a *Hogſhead*, after which Mellowing proceed thus.

1. *Pick* and *clear* your *Apples* from their *Stalks*, *Leaves*, *Moazineſs*, or any Thing that tends towards *Rottenneſs* or Decay.

2. Lay them before the *Stone* in the *Cider-Mill*, or elſe beat them ſmall with *Beaters* (ſuch as *Paviours* uſe to fix their pitching) in deep *Troughs* of *Wood* or *Stone* till they are fit for the Preſs.

3. Having laid clean *Wheat-Straw* in the bottom of your *Preſs*, lay a Heap of bruiſed *Apples* upon it, and ſo with ſmall Handfuls, or *wiſps* of *Straw*, which by twiſting takes along with it the ends of the *Straw* laid firſt in the bottom, proceed with the bruiſed *Apples*, and follow the Heaps with your twiſted *Straw*, till it comes to the Height of two Foot, or two Foot and a half; and ſo with ſome *Straw* drawn in by *Twiſting*, and turned over the top of it (ſo that the bruiſed *Apples* are ſet as it were into a deep *Cheeſe-vat* of *Straw*, from which the Country People call it their *Cider-cheeſe*) let the

Board fall upon it *even* and *flat*, and ſo engage the Force of your *Skrew* or *Preſs*, ſo long as any *Liquor* will run from it. Inſtead of this *Cheeſe* others uſe *Bags* of *Hair-cloth*.

4. Take this *Liquor* thus forced by the *Preſs*, and *ſtrain* it thorough a *Strainer* of *Hair* into a *Vat*, from whence ſtraight (or that Day) in *Pails*, carry it to the *Cellar*, tunning it up preſently in ſuch *Veſſels* as you intend to preſerve it in; for I cannot approve of a long *evaporation* of *Spirits*, and then a Diſturbance after it ſettles.

5. Let your *Veſſels* be very tight and clean wherein you put your *Cider* to ſettle: The beſt Form is the *Stund* or *Stand*, which is ſet upon the leſſer End, from the top *tapering* downwards; as ſuppoſe the *head* to be *thirty* Inches *Diameter*, let then the bottom be but *eighteen* or *twenty* Inches in *Diamiter*; let the *Tun-hole* or *Bung-hole* be on the one Side *outwards*, towards the *Top*. The reaſon of the Goodneſs of this *form* of *Veſſel* is, becauſe *Cider* (as all ſtrong Liquors) after *Fermentation* and Working, contracts a *Cream* or *Skin* on the *top* of them, which in this Form of *Veſſel* is as it ſinks *contracted*, and fortified by that Contraction, and will draw freſh to the laſt Drop; whereas in our ordinary *Veſſels*, when drawn out about the half or middle, this Skin *dilates* and *breaks*, and without a quick Draught decays and dies.

6. Reſerve a *Pottle* or *Gallon* of the *Liquor* to fill up the *Veſſel* to the Brim of the *Bung-hole*, as oft as the *Fermentation* and working leſſens the *Liquor*, till it hath done its Work.

7. When it hath compleated its Work, and that the *Veſſel* is filled up to the *Bung-hole*, ſtop it up cloſe with well-mix'd *Clay*, and well tempered, with a Handful of *Bay-ſalt* laid upon the top of the *Clay*, to keep it moiſt, and renewed as oft as Need ſhall require; for if the *Clay* grows dry, it gives Vent to the *Spirits* of the *Liquor*, by which it ſuffers Decay.

I am againſt either the *boyling* of *Cider*, or the hanging of a Bag of *Spices* in it, or the Uſe of *Ginger* in drinking it; by which Things People labour to correct that *Windineſs* which they fancy to be in it: I think *Cider* not *Windy*; thoſe that uſe to drink it are moſt free from *Windineſs*; perhaps the *Virtue* of it is ſuch, as that once ripened and mellowed, the drinking of it in ſuch Strength, combates with that *Wind* which lies inſenſibly latent in the Body. The *Cider* made and ſold here in *London* in *Bottles*, may have that *Windineſs* with it as *Bottle-beer* hath, becauſe they were never ſuffered to *ferment*. But thoſe that have remarked the Strength and Vigor of the *Fermentation*, what weighty Things it will caſt up from the bottom to the top, and with how many Bubbles and Bladders of *Wind* it doth *work*, will believe that it clears it ſelf by that Operation of all ſuch injurious *Qualities*.

To preſerve *Cider* in *Bottles*, I recommend unto you my own *Experience*, which is, not to *bottle* it up before *Fermentation*; for that incorporates the *windy Quality*, which otherwiſe would be ejected by that Operation. This violent Suppreſſion or Fermentation makes it *windy* in drinking, (though, I confeſs, *brisk* to the *Taſte*, and *ſprightly* cutting to the *Palate*:) But after *Fermentation*, the *Cider* reſting

ing two, three, or four Months, draw it, and *bottle* it up, and ſo lay it in a *Repoſitory* of cool *ſpringing Water* two or three foot, or more, deep; this keeps the *Spirits*, and the beſt of the *Spirits* of it together: This makes it drink quick and lively; it comes into the *Glaſs* not *pale* or troubled, but bright *yellow*, with a ſpeedy vaniſhing *Nittineſs*, as the *Vintners* call it) which *evaporates* with a *ſparkling* and *whizzing* Noiſe; and than this I never taſted either *Wine* or *Cider* that pleaſed better: Inſomuch that a *Nobleman* taſting of a *Bottle* out of the *Water* (himſelf a great *Cideriſt*) proteſted the Excellency of it, and made with much greater Charges, at his own Dwelling, a Water *Repoſitory* for his *Cider* with good Succeſs.

An Account of *Perry* and *Cider*, out of *Glocesterſhire*.

Imparted by *Daniel Collwall*, Eſq;

About *Taynton*, five Miles beyond *Glouceſter*, is a mix'd Sort of *Land*, partly *Clay*, a *Marle*, and *Craſh*, as they call it there; on all which Sorts of *Land* there is much *Fruit* growing, both for the *Table* and for *Cider*: But it is *Pears* it moſt abounds in, of which the beſt Sort is that they name the *Squaſh-Pear*, which makes the beſt *Perry* in thoſe Parts. Theſe *Trees* grow to be very large and exceeding fruitful, bearing a fair round *Pear*, red on the one ſide, and yellow on the other, when fully ripe. It oftentimes falls from the *Tree*, which commonly breaks it; but it is of a Nature ſo harſh, that the *Hogs* will hardly *eat them*.

They uſually plant the *Stocks* firſt, and when of competent Bigneſs (and tall enough to prevent Cattle) *graff* upon them. 'Tis obſerv'd, that where *Land* is *plow'd* and *dreſs'd* for Corn, the *Trees* thrive much better than in the *Paſture-grounds*, ſo as divers *Orchards* are yearly plow'd and ſown with Corn, which, for the moſt part, they ſuffer their *Swine* to eat upon the Ground without cutting; and ſuch *Plantations* ſeldom or never fail of plentiful Crops, eſpecially in the *Rye-land* or light Grounds.

About *Michaelmas* is made the beſt *Cider*, and that of ſuch *Fruit* as drops from the *Trees*, being perfectly mature; and if any are gathered ſooner, they let them lie in the Houſe eight or nine Days for the better mellowing.

The beſt *Mills* to grind in are thoſe of *Stone*, which reſembles a *Mill-ſtone* ſet *edge*-ways, moved round the *Trough* by an *Horſe* till the *Fruit* be bruiſed ſmall enough for the *Preſs*. This done, then put it up into a *Crib* made with ſtrong Studs, and *Oaken* or *Haſel* Twigs about three foot high, and two and a half wide; which is placed on a *Stone* or Wooden *Cheeſe-fat*, a foot broader than the *Crib*, fitted to a round *Trough* for the *Liquor* to paſs into the Ciſtern, which is a large Veſſel. When the *Crib* is filled with the foreſaid ground *Fruit*, they put a *Stone* upon it; but firſt they fit a Circle of freſh *Straw* about the *Crib* to preſerve the *Muſt* (which is the bruiſed *Fruit*) from ſtraining through the *Crib* when they apply the *Skrews*,

which being *two* in number, and of a good Size, turn in a great *Beam*, and ſo are wrung down upon the *Crib*, within which they place two wide and thick *Cheeſe-fats*, and ſeveral *Blocks* upon the *Fruit*, to cruſh it down with the more Force, by which means it is wrung ſo *dry*, as nothing can be had more out of it. A *Crib* will contain at *once* as much ground *Fruit*, as will make above an *Hogſhead* of *Cider*; and there may be diſpatched ſix or ſeven ſuch *Veſſels* in one Day.

When the *Preſſing* is finiſhed, they take out the *Fruit*, and put it into a great *Fat*, pouring ſeveral *Pails* of *Water* to it; which being well *impregn'd*, is ground again ſlightly in the *Mill*, to make an ordinary *Cider* for the *Servants*: This they uſually drink all the *Year* about.

When the beſt *Liquor* is tunn'd up, they commonly leave the *Bung-hole* open for nine or ten Days to *ferment* and *purify*; for though in moſt Places they add *ſtraining* to all this, yet ſome of the *Husks* and *Ordure* will remain in it. The *Veſſel*, after a Day or two ſtanding, is fill'd up; and ſtill as the *Cider* waſtes in working, they ſupply it again, till no more *Filth* riſes; and then *ſtop* it up very accurately cloſe, leaving only a ſmall *breathing* Hole to give it Air for a *Month* after, and to prevent the *burſting* of the *Veſſel*.

Note, That they ſometimes put two thirds *Pears*, and one third of *Apples*.

The uſual Names *of* Glouceſterſhire Cider-Fruit.

Red-ſtrakes, growing chiefly in the *Rye-lands*; ſweet *White-Muſt*, *Red-Muſt*, the *Winter-Muſt*, the *Streak-Muſt*, the *Gennet-Moyl*, the *Woodcock-Apple*, the *Bromſgrove-Crab*, the *Great-White-Crab*, the *Heming*, and divers other Sorts, but theſe are the principal.

The Pears *for* Perry *are*,

The *Red Squaſh-Pear* eſteem'd the beſt, the *John-Pear*, the *Harpary Green-Pear*, the *Drake-Pear*, the *Green Squaſh-Pear*, the *Mary-Pear*, the *Lullam-Pear*: Theſe are the chief.

For making of Cider, *out of Mr.* Cook.

LET your *Fruit* hang till thorough *ripe*, to be known by the Browneſs of the *Kernel*, or that they rattle in the *Apple*, or if they fall much in ſtill Weather, or that they handle like dry Wood, ſounding if toſſed up: If it be green, your *Cider* will be *ſowre*. *Gather* dry, with theſe Directions: Reject the much *bruiſed*, they will rot, mar the *Taſte*, and give an high Colour.

Of good yielding *Fruit* not too long kept, 18 or 20 *Buſhels* will make an *Hogſhead*: If you gather not by Hand, which is tedious, lay a Truſs of Straw beneath the *Tree*, and over that a *Blanket*, diſcreetly ſhaking it down, not too many at a time, but often carrying them where they are to ſweat, which ſhould be on dry *boarded* Floors; by no means on Earth, unleſs Store of ſweet *Straw* lie under: By about 10 or 14 Days they will have done ſweating. Then *grind* or *beat* them, keeping the Fruit ſeveral, in caſe you have enough to fill a Veſ-

ſel of one kind; if not, put ſuch together as are near ripe together, for its more uniformly *fermenting*. Winter Fruit may lie three Weeks or a Month e'er you grind: the greener they are when gathered, let them lie the longer.

Being *ground*, let them continue 24 Hours before *preſſing*; 'twill give it the more Amber-bright Colour, hinder its over-*fermenting*; and if the Fruit were very mellow, add to each 20 Buſhels of Stampings, 6 Gallons of pure Water poured on them ſo ſoon as beaten. The ſofter and *mellower*, the more Water to reſtrain its over-working, and tho' the *Cider* be weaker, it will prove the pleaſanter: For over-ripe and *mellow* Fruit, let go ſo much of the looſe and fleſhy Subſtance thro' the Percolation, that with Difficulty will you ſeparate the *Lee* from the *Liquor* before it *ferment*, and then away go the brisk and pleaſant *Spirits*, and leave a vapid or ſowre Drink, contracted from the remanent groſs *Lees*. The *Cider* made of ſuch Fruit had need be ſettling 24 Hours in a large *Vat* or *Veſſel*, that the *Fæces* may ſettle before you tun it up; and then draw it off, leaving as much of this thick Lee behind as you can, (which yet you may put among your Preſſings for a Water-*Cider*. If you conceive your *Cider* ſtill ſo turbid that it will work much, then draw it into another *Veſſel* by a *Tap* two or three Inches from the bottom, and ſo let it ſettle ſo long, as you think it is near ready to work in it: for if it work in your *Tubs*, little of the groſs *Lees* will you be able to get from it. *Note*, That you muſt keep it cover'd all the time it is in your Tubs, and the finer you put it up in your *Veſſel*, the leſs it will *ferment*, and the better your Drink: But in caſe you chill the *Cider* (as oft it happens in cold Winter Weather) ſo as it do not work when put into Cask, caſt into it a Pint of the Juice of *Alehoof*, with half the Quantity of *Icing-glaſs* to refine it, which tho' it do not ſuddenly, at the Spring it will.

Theſe Directions obſerv'd, barrel it up; and when it ceaſes working, bung it cloſe, and reſerve it ſo till fit to *bottle*, that is, when fine, ſince till then it will endanger their burſting; and if you would have it very brisk and cutting (which moſt affect) put a little Lump of *Loaf-ſugar* into every Bottle.

The *Golden Pippin*, *Kerton Pippin*, *Ruſſet Harvy*, *Kentiſh Codlin*, make excellent *Cider*; but above all, *Red-ſtrakes* and *Gennet-moyles*: Indeed any *Apple* which is not a *Crab*; there being divers ſorts of *Wildings* and *hard-fleſh'd Apples* proper for this Liquor: But that *Pear* or *Apple* which is of a ſoft and looſe Fleſh is not fit to make a *vinous* Drink, becauſe of their breaking into ſo many Particles, which are ſo difficult to ſeparate: That Fruit therefore which being preſs'd flats down and ſeparates leaſt, and that being kept beyond its time of Maturity, grows rather tough than mellow, is far the beſt.

For *Water-Cider*, take your Stampings when you preſs them from your firſt Liquor, and put them into Tubs; and they being full, put to them half as much Water as you had of *Cider*, the riper your Fruit, the more Water; cover your Veſſels, and ſo let them ſtand four or five Nights and Days; if the Seaſon be cold, a full Week; then preſs the Stampings; and having as much as will fill a Veſſel, ſet it on the Fire, and *ſcum* it well; and that abated ſomewhat, pour it into *Coolers*, and being cold, tun it up, and bung it well after it has left working. In a Month after you may drink. Some add a little *Ginger*, *Cloves*, *Juniper-berries*, as they fancy.

In

In this ſort order *Perries*, only let not the *Fruit* be too ripe: Thoſe of hard Fleſh, ſtonyeſt Core, and harſh Taſte, are beſt: He recommends a *Pear* near *Watford*; and Capt. *Wingats* near *Welling*, alſo *Ruffin* Pear.

Moſt ſort of *Baking-Pears* make good *Perry*.

Be curious of ſweet well ſeaſon'd *Casks*, ſuch as have had *Sack*, *White*, *Claret*, or good *Ale*, in them before.

Another.

TAKE your *Apples* when they reliſh beſt, not too *green*, nor too *mellow*; they who have large *Plantations* may ſhake their *Trees* a little, and gather thoſe which fall off eaſily, and *preſs* them the ſame Day: Fill not your *Cask* above *three* quarters full, and let it ſtand till it grow clear, which is commonly within eight or ten Days, and then draw off only the clear, and fill up a clean *Cask* almoſt to the top; giving it *vent* thrice a Day, leſt it burſt the *Veſſel*; and ſo continue to do for a *Week*.

Then, for every ten *Gallons* of *Cider*, take one *Pound* of *Raiſins* of the *Sun*, and put them into ſome *Brandy* for a Day or two, and then take only the *Raiſins* and fling them into the *Cider*, letting it ſtand three or four Days more. Laſtly, ſtop the *Cask* very cloſe, but *bottle* it not till *March*, except it be of *Codlins*, which will not keep ſo long.

Another.

Cider *of* Harvy-Apples, *or* Pippins boyl'd, *ſent me out of* Wales *by Sir* Tho. Hanmer *of* Hanmer.

YOU muſt take only one ſort of thoſe *Apples* without mixture of kinds, and when they are *ſtamp'd*, let them be *ſtrained*, *boiling* the *Juice*, and continually as the *Scum* riſes, clear it. In this Work you muſt diligently watch and obſerve the *Colour* as it boils, and not ſuffer it to exceed the looks of good *Small-Beer*, for if you expect till it be too high charg'd, it will become nothing worth: The *Cider* well clear'd of the *Scum*, ſo ſoon as it is *cold* tun it into a ſweet *Veſſel*, leaving only a *vent*, the reſt cloſe *ſtopp'd*, and when it ſings, and begins to bubble up at the *vent*, draw it out into *Bottles* carefully clos'd: This will become excellent Drink. *Note*, That you are to ſtamp and make your *Cider* of *Harvy* Apples as ſoon as they are gather'd; but the *Pippins* may lie at the leaſt ſix *Weeks* without detriment.

Another Account of CIDER, *from a* Perſon *of great* Experience.

Cider-Apples for Strength, and a long laſting *Drink*, is beſt made of the *Fox-Whelp* of the *Foreſt* of *Dean*, but which comes not to be drunk till *two* or *three Years* old.

2. *Bromsbury-Crab* the ſecond Year; in the Coaſt and Tract 'twixt *Hereford* and *Ledbury*.

3. *Under-leaf*, beſt at *two* Years, a very plentiful Bearer, hath a *Rheniſh-Wine* flavour; the very beſt of all *Ciders* of this kind, *hoarded* a little within Doors: The *longer* you would *keep*, the *longer* you muſt *hoard* your *Fruit*.

4. The *Red-ſtrake* of *King's-Capel*, and thoſe Parts, is in great variety: Some make *Cider* that is not of continuance, yet pleaſant and good; others, that laſts long, inclining towards the *Bromsbury-Crab* rather than a *Red-ſtrake*.

5. A long pale *Apple*, called the *Coleing*, about *Ludlow*, an extraordinary Bearer.

6. The *Arier-Apple*, a conſtant *Bearer*, making a ſtrong and laſting *Cider*; ſome call them *Richards*, ſome *Grange-Apples*; and indeed they make ſo excellent a *Drink*, that they are worthy to be recover'd into uſe.

7. The *Olive*, well known about *Ludlow*, may, I conceive, be accounted of the *Winter-Cider-Apples*, of which 'tis the conſtant report, that an *Hogſhead* of the *Fruit* will yield an *Hogſhead* of *Cider*.

The *Summer-Ciders are*,

1. The *Gennet-Moyl* of one year: The beſt *Baking-Apple* that grows, and keeps long *baked*; but not ſo *unbaked* without growing *mealy*; it *dries* well in the *Oven*, and with little trouble. The *Gennet-Moyl-Cider*, when the *Fruit* is well *hoarded* and mellow, will body, and keep better.

2. The Summer *Red-ſtrake*, of a wonderful *fragrant* and *Aromatick* quality.

3. Sir *Ed. Harley's little Apple*, eſteemed to make one of the richeſt *Ciders* in the World. Alſo his,

4. *Great Summer-Apple*, reſembling the *Red-ſtrake*, juicy and *Aromatick*.

5. The *White-Muſt*, *ſtreaked-Muſt*, &c. great Bearers, and their *Cider* early ripe.

6. *Pearmains*, have made excellent *Cider*, as good, if not ſuperior to any other in ſome years; and though it be true, that every ſort of *Fruit* makes better *Drink* ſome years than others; yet, for the moſt part, the goodneſs and perfection of *Cider* reſults from the lucky, or intelligent *Gathering*, or *Hoarding* of the *Fruit*, or from both; and this *Knowledge* muſt be from *Experience*.

7. Generally, the *Cider* longeſt in *fining*, is ſtrongeſt and beſt laſting, eſpecially if the *Fruit* have been well *hoarded* for ſome time.

8. *Cider* made of *Green* and immature *Fruit*, will not *fine* kindly, and when it does, it abides not long good, but ſuddenly becomes *eager*.

9. *Cider* kept in very cool *Cellars*, if made of ripe *Fruit* renders it long in *fining*, and ſometimes *Cider* by expoſing abroad in the *Sun*, and kept *warm*, hath ſooner *matur'd*, and continu'd long good: But the beſt *Drink* is that which *fines* of it ſelf, preſerved in an indifferent temper.

10. All *Cider* ſuffers *Fermentation* when Trees are *bloſſoming*, though it be never ſo old; and *Cider* of very ripe *Fruit*, if *bottl'd* in that ſeaſon, will acquire a *fragrancy* of the *bloſſom*.

11. New *Cider*, and all *diluted* and water'd *Ciders*, are great *Enemies* to the *Teeth*, and cauſe violent *Pains* in them, and *Rheums* in the *Head*.

12. One *Rotten-Apple*, of the ſame kind with the *Sound*, corrupts a whole *Veſſel*, and makes it *Muſty*.

But ſince the Second, and former *Impreſſions* of theſe *Diſcourſes*, there is publiſh'd (by an ingenious and obliging Hand) the *Vinetum Britannicum*, treating not only of *Cider*, but ſuch other *Wines* and *Drinks*, as are extracted out of ſeveral *Fruits*: It is there he recommends,

The not gathering *Fruit* for *Cider*, till full Maturity and *Fragrancy*; and that it is better to make ſeveral *Preſſings*, than all at once, proportioning the *Veſſels* accordingly.

That the *Fruit* be carefully gather'd, not *windfallen* nor *bruis'd*: Let ſuch be left to dry a competent Time before *Grinding*, ſuffering your *Cider* thoroughly to *ferment* before you *Cask* it up.

Let *Cider* Fruit remain ſome Time in the *Heap* upon dry *Straw*, and under Shelter, in a ſweet Place, to ſweat out the *Phlegm* and ſuperfluous Moiſture, from ten to twenty Days, if the *Fruit* be *harſh*, but not too long.

Then extract the *Liquor*, either by *hand-pounding* with great *Peſtles* (which is the ruder and worſt way) or by the *Horſe-Mill*, with the *Mill-ſtone* on Edge in a *Trough* of *Stone*, expeditious, but chargeable: Or by *grating*, *beating* with a *Maule*, which are trifling: Or, beſt of all, by an *Engine* deſcrib'd by the *Author*, p. 82. &c. to which we refer the Curious.

Remember, when you bring your *Fruit* to the *Mill*, you reject the *rotten*, *unripe Stalks* and *Leaves*.

That you grind not ſo ſmall, as that too much of the *Pulp* paſs with the *Liquor*.

That after *Grinding* it ſtand 24 or 48 *Hours*, both to acquire *Colour*, and that the unbruiſed Parts of the *Fruit* may the eaſier ſeparate from the Juice in the *Preſs*.

That ſome of the *Cider* be ſuffer'd to diſtill either through a falſe bottom to the *Vat*, or by a Tap into a fit *Recipient*: This being the *Virgin*, and beſt Liquor. Laſtly,

That you ſquezee the bruiſed *Pulp* in the *Skrew-preſs*, within a *Circle* of clean, ſweet *Wheat-ſtraw*; winding in the Heap with the *Wiſp* to a Foot in Height, before you place the *Board*, and apply the *Straw*. But inſtead of the *Straw-wiſp*, a *Basket* may be fitted, which with a little *Straw* within, will keep the *Fruit* in better Order; ſome make Uſe of a *Hair-cloth-bag* placed in a Frame.

That you *preſs* it as dry as may be, unleſs you intend to make a *diluter* Sort, by mixing therewith the *Murc*.

That you pour the Liquor coming from the Preſs, through a *Strainer* into a large *Vat*, to detain the groſſer pieces of the Fruit from intermixing with the clear.

That you do not tun it up immediately, as ſome pretend, to prevent evaporation of Spirits; but, to caſt a Cloth or Blanket over the *Vat*, to the end that the wild and untameable *Spirits* (which would even burſt the *Barrel*) may be a little check'd and ſubdu'd.

That you carefully ſeparate the *Flying Lee*, namely, the diſpers'd and groſſer *Particles* of the *Fruit*, which comes with the *Liquor*;

This

This facilated by Warmth, or *Iſing-glaſs*, three or four *ounces* to an *Hogſhead*, beaten thin, *macerated*, and cut in ſmall pieces in *White-wine*; then ſet on a gentle Fire, till 'tis well diſſolv'd, boil it in a *Gallon* of *Cider*, and caſt it into the *Maſs*, ſuppoſe it of 20 *Gallons*, and ſo to every like Proportion, ſtirring it well, and covering it cloſe for ten or twelve Hours, within which Time it will uſually have precipitated the Glaſs. Thus when it ceaſes working, draw it from the Scum with a little Spigot below, or better by a *Syphon* above, and ſo barrel it up cloſe.

Note, That as you augment the Proportion of *Iſing-glaſs* or *Water-glew*, ſo it will become more *limpid* and clear; but there is a Mediocrity to be obſerv'd, leſt you render it too lean and thin.

That this way, as 'tis uſeful to the *defecating* of the *Juices* of all other *Liquors* made of *Fruit*, ſo is it preferable to all *Fermentations* of *Yeſt*, *Toaſts*, *Percolations*, and *Rackings*, which not only tend to *Acidity*, but waſts and diſpirits the Juices, and beſides is very troubleſome.

That Reſidence of impure *Fæces* may be caſt on the *Murc*, if you repreſs for a *Water-Cider*.

The *Liquors* thus purified are not obnoxious (by ſome frequent *Refermentations*) to burſt the *Bottles* upon change of Weather.

Laſtly, Is preſcribed the ſame Form of ſtanding *Veſſels*, to preſerve and keep it in, as we have already mention'd. The *Bunghole* to be of two Inches *Diameter*, with a *Plug*, and a *Vent-hole* near it.

That new *Veſſels* be ſeaſon'd, and ſcalded with *Water* in which *Apple-pummis* hath been boiled: If old *Veſſels*, that they be ſuch as have been us'd for *Canary*, *Spaniſh-Wines*, or *Metheglin*, by no means *Ale* or *Beer*, yet *Small-beer* Veſſels if well ſcalded, may ſerve upon Occaſion.

To correct the *Muſtineſs* of *Veſſels* is preſcribed a Decoction of *Pepper* in Water, one *Ounce* to a *Hogſhead*; the *Veſſel* being fill'd with it ſcalding hot, and ſo let ſtand two or three Days: The ſame is *cur'd* with two or three *Stones* of *Quick-lime*, to ſix or ſeven *Gallons* of Water, put into the *Hogſhead* cloſe ſtopp'd, and roll'd up and down.

Glaſs Bottles preferred; the *Stopples* exquiſitely fitted by grinding them with *Oil* and *Smyris*, or *Emery* (as our Workmen call it) being careful to preſerve each *Stopple* to its *Bottle*, by tying it by the *Knob* to the Neck thereof with a Packthread.

The *Cure* of *muſty Bottles* is boiling them in a Veſſel of Water, putting them in whilſt the Water is *cold*, to prevent their *cracking*, and then ſet them on *Straw*, and not on the cold Floor, when you take them out.

In *Tunning* your *Cider*, the Veſſels dry, fill them within an *Inch* or leſs of the top, that there be ſpace for the *Head* or *Skin*; remembring to leave the *Bung-hole* open, or ſlightly cover'd two or three Days, to perfect its *fermenting*, if it happen to work: If not, and that it be deſign'd for long keeping, put into it ſome unground *Wheat*, a *Quart* to an *Hogſhead*, which inducing an artificial *Head* or *Skin*, protects it from all poſſible Injury of the *Air*.

Having cloſs'd the *Bung*, peg the *Vent* but looſely; that in caſe the Liquor be unquiet, it may not heave up the Head of the *Barrel*: Wherefore you muſt ſtop and eaſe the *Vent* from Time to Time diſcreetly, till all be in Repoſe.

It is good to cover the *Plug* exactly adjusted to the *Bung* with a brown Paper wetted, the better to wring it close.

Cider, thoroughly purified, may be *bottled* at any Time or Season: If early, and vigorous, it will need no Assistance; if *later*, *flat*, or *acid*, spirit it with a little *Loaf-Sugar:* If you *bottle* it *early* (to prevent any remanent *Fermentation*) let them stand a while before you stop them close; or be sure to open them within two or three Days after.

If you stop with *Corks*, let them be sweet, boil'd and us'd whilst yet moist, laying the *Bottles* side-ways. *Note*, That they stand better on the *Ground*, than in *Frames*, unless in vaulted *Cellars*. But a *Refrigeratory* with a cold *Spring*, especially if it be running Water, is most excellent. *Note*, That the binding down of the *Cork* endangers the *Bottles* breaking, whereas that omitted, you hazard only the loss of the *Liquor*.

Cider boil'd with *Spices* not approv'd (though pleasant) as apt to contract an unsavoury Tincture from the Vessel 'tis boil'd in: But this may *haply* be reform'd by such as are *tinn'd*.

Cider boil'd to the Expence of half will keep well, and is very strong.

To restore decay'd *Liquor*, if *flat* and *vapid*, from a too free Admission of *Air*, or ill stopping; grind a Parcel of *Apples*, putting them in by the *Bung-hole*; then stop the Vessel close, and sometimes give it *Vent*. But this must be drawn off in few Days, lest the *Murc* vitiate the *Whole:* This yet may be prevented, by putting up only the new *Must* of the *Fruit* you press, on the decay'd *Cider*. The same may be done in *Bottles*, by adding a *Spoonful* or two of such *Must*, and stopping them carefully.

Acid Cider will sometimes recover of it self, in Case any *Lee* remain; if not, add a *Gallon* of unground *Wheat* to each *Hogshead*; or *bottle* it with *Sugar*.

Cider turn'd and eager, is irrecoverable.

Musty *Cider* is best corrected, seldom restor'd with *Mustard-seed* ground with some of the *Liquor*. Thick *Cider* is cur'd by exciting new *Fermentation*.

To *Tun* it in *Vessels* fum'd with *Sulphur*, is an excellent and wholsome Preservative of *Cider*.

Water Cider.

Boil'd Water, suffer'd to stand (till cool'd) is best, as being more *defecated*, and that it be mix'd in the *Grinding*. This small *Beveredge* or *Ciderkin* and *Purre* (as 'tis call'd) is made for the common drinking of *Servants*, &c. supplying the Place of *Small-beer*, and to many more agreeable: It is made by putting the *Murc* into a large *Vat*, adding what quantity of Water you please, namely, about half the quantity of the press'd *Cider*, or more, as you desire it *stronger* or *smaller*. *Note*, That the Water should stand 48 *Hours* on it before you press, *tunning* up, and immediately stopping what comes from the *Press*. Thus it will be *drinkable* in few Days, clarifying it self. 'Tis fortified, by adding to it the *Lee* or Settling of better *Cider*; putting it on the *Pulp* before *Pressure*, or by some superfluous *Cider*, which your *Vessels* could not contain, or by *grinding* some *fallen* and refuse *Apples*.

Ciderkin will be made to keep long, by being *boil'd* after *Pressure* with such a Proportion of *Hops*, as is usually added to *Beer*; in which Case you need not to boil the *Water* before.

Mixtures.

Tho' *Cider* needs not any, 'tis yet a very proper *Vehicle* to transfer the Virtue of any *Aromatic* or *Medicinal* thing; ſuch as *Ginger*, *Juniper*, &c. the *Berries* dried, ſix or eight in each Bottle, or proportionably in the Cask: But this is not ſo *palatable* as *wholſome*.

Ginger renders it briſk; dried *Roſemary*, *Wormwood*, Juice of *Corints*, &c. whereof a few Drops tinges, and adds a pleaſant Quickneſs. Juice of *Mulberries*, *Blackberries*, and (preferable to all) *Elderberries* preſs'd among the *Apples*, or the Juice added. *Clove-July-flowers* dry'd and macerated, both for *Tincture* and *Flavour*, is an excellent Cordial. Thus may the Virtues of any other be extracted. Some ſtamp *Malaga Raiſins*, putting *Milk* to them, and letting it percolate through an *Hippocras* Sieve. A ſmall Quantity of this, with a Spoonful or two of *Syrup* of *Clove-July-flowers* to each *Bottle*, makes an incomparable Drink.

Perry.

Let not your *Pears* be over-*mellow* when you *grind* them, the *Pulpineſs* obſtructing the Juice.

Crabs mix'd in *grinding* improve the *Perry*, diſcreetly proportion'd according to the Sweetneſs of the *Pear*. That of *Bosbury* yields the moſt *laſting* Liquor.

Vinegar of *Cider*

Is made by putting it upon the *Rape*, as the *French* to their bad *Wines*. By *Rape*, is meant the *Husks* of the *Grape* cloſe preſs'd, which our *Vinegariſts* have out of *France*, and uſe it as a *Leaven* to give it that *Acidity*. The *Husks* of our *Engliſh Grape* will probably ſupply the want of the other, not ſo eaſily to be had.

Virtues.

Innumerable are the *Virtues* of *Cider*, as of *Apples* alone, which being raw eaten, *relax* the Belly, eſpecially the *ſweet*, aid *Concoction*, depreſs *Vapours*; being *roaſted* or *coddled*, are excellent in *hot* Diſtempers, reſiſt *Melancholy*, *Spleen*, *Pleuriſy*, *Strangury*, and being ſweeten'd with *Sugar*, abate inveterate Colds. Theſe are the common Effects even of raw *Apples*; but *Cider* performs it all, and much more, as more active and pure. In a word, we pronounce it for the moſt *wholſome Drink* of *Europe*, as ſpecifically ſovereign againſt the *Scorbute*, the *Stone*, *Spleen*, and what not?

Pears are nouriſhing, eſpecially the baked *Warden* edulcorated with *Sugar*, and is exceedingly reſtorative in *Conſumptions*; the *Perry* a great *Cordial*, &c.

After this our *Author* paſſes to an Enumeration of the beſt *Apples* and *Pears*, which we paſs by; becauſe the Curious will find them at the End of the annex'd *Kalendar*; nor ſhould I have ſubjoin'd what we have here accumulated concerning *Cider*, occurring (as moſt of it does) in the former Papers, eſpecially thoſe of Dr. *Beal* and Eſquire *Newburgh*, Captain *Taylor*, &c. but that we find what lies *there* diſperſed, to be ſo *methodically recapitulated*.

To conclude this *Treatiſe*: We will gratify the *Cider-Maſter* with the *Conſtruction* of a new kind of *Preſs*, brought into the *Royal Society* by their *Curator*, the ingenious Mr. *Hooke*; and if perfectly underſtood by him that ſhall imitate it, recommended not only for its extraordinary *Diſpatch*, but for many other *Virtues* of it, chiefly the accurately *grinding* of the *Pulp*, and keeping the *Husks* from deſcending with the Liquor.

Explication of the Figures.

a. The *Axis*, by which *four Cylinders* are to be mov'd, either by the Force of *Men*, *Horſes*, *Wind* or *Water*, &c.

b. c. d. Three of the *four* (viſible) *Cylinders* ſo placed, that thoſe which are firſt to bruiſe the *Apples* may ſtand at about half an Inch, or leſs diſtance from each other. Thoſe that are to preſs out the *Juice* may join as cloſe as they can well be made to move.

f. f. The *Trough* in which to receive the *Liquor* running through certain *Holes* made in the lower Plate there marked.

e. e. The *Hopper*, made tapering towards the *bottom*, in which you fling the *Apples*, and ſupply them as they ſink towards the *Cylinders*. *Note*, That ſuch another *Hopper* is ſuppos'd to be alſo made, and fitted to this *Fore-part* of the *Preſs*, but here omitted, that the *Proſpect* and *Deſcription* of the *Cylinders* may the better be laid open and demonſtrated.

g. g. g. The *Spindles* of each *Cylinder*.

h. h. i. i. k. k. The *Frame*, conſiſting of two *Plates* and two *Pilaſters*, which hold the *Cylinders* together. *Note*, That the *Cylinders* muſt be made of excellent Oaken Timber, or other hard Wood; the Dimenſions about three foot long, one foot and half diameter: the reſt of the *Frame* for thickneſs, &c. of Size and Strength proportionable.

l. l. The *Legs* which ſupport the *Frame*.

FIG. II. Repreſents the *Ichnography* of the *Firſt*.

But there are likewiſe other freſh Inventions and *Ingenio's* for the Diſpatch of this Work, namely, that of Mr. *Wolridge's* of *Petersfield* in *Hampſhire*, and more that you may find in an *Hortulan* Advertiſement communicated by the Learned Dr. *Beale* to the late Publiſher of the *Philoſophical Tranſactions*, Vol. 12. Numb. 134. Pag. 846. Where, when all are reckon'd up, the vulgar Way of pounding the *Fruit* in *Troughs*, made deep and ſtrong with broad-footed *Pounders*, is found inferior to none.

ACETARIA.

A

DISCOURSE

OF

SALLETS.

By *J. E.* S. R. S. Author of the *Kalendarium.*

'Ου παντὸς ἀνδρὸς ἔστιν ἀρτῦσαι καλῶς. Crat. in Glauc.

To the Right Honourable

JOHN Lord *Somers*,

Of *EVESHAM*,

Lord *High-Chancellor* of *ENGLAND*, and *Preſident* of the *Royal Society*.

My Lord,

THE *Idea* and *Plan* of the *Royal Society* having been firſt conceiv'd and delineated by a *Great* and *Learned Chancellor*, which high Office your Lordſhip deſervedly bears; not as an Acquiſition of Fortune, but your Intellectual Endowments, conſpicuous (among other Excellencies) by the Inclination your Lordſhip diſcovers to promote *Natural Knowledge:* As it juſtifies the Diſcernment of that *Aſſembly*, to pitch upon your Lordſhip for their *Preſident*; ſo does it no leſs diſcover the Candor, yea, I preſume to ſay, the Sublimity of your Mind, in ſo generouſly honouring them with your *Acceptance* of the *Choice* they have made.

A *Chancellor*, and a very Learned Lord, was the *Firſt* who honoured the *Chair*; and a no leſs Honourable and Learned *Chancellor* reſigns it to your Lordſhip: So as after all the Difficulties and Hardſhips the *Society* has hitherto gone through, it has, thro' the Favour and Protection of its *Preſidents*, not only preſerved its Reputation from the Malevolence of Enemies and Detractors, but gone on *culminating*, and now *triumphantly* in your Lordſhip: Under whoſe propitious Influence, I am perſuaded, it may promiſe itſelf *that*, which indeed has hitherto been wanting, to juſtify the glorious Title it bears of a ROYAL SOCIETY; the *emancipating* it from ſome remaining and diſcouraging Circumſtances, which it as yet labours under; among which, that of a *precarious* and unſteady Abode is not the leaſt.

Lord Viſcount Brouncker, *Chancellor to the late Queen Conſort, now* Dowager. *The Right Honourable* Cha. Montague, *Eſq; Chancellor of the* Exchequer.

This *Honour* was reſerv'd for your Lordſhip; and an *Honour*, permit me to call it, not at all unworthy the owning of the greateſt Perſon living; namely, the eſtabliſhing and promoting *real Knowledge*; and (next to what is *divine*) truly ſo called; as far at leaſt as human Nature extends towards the Knowledge of Nature, by enlarging her Empire beyond the Land of *Spectres*, *Forms*, *Intentional Species*, *Vacuum*, *Occult Qualities*, and other *inadequate Notions*; which, by their obſtreperous and noiſy Diſputes, affrighting, and (till of late) deterring Men from adventuring on farther Diſcoveries, confin'd them in a lazy Acquieſcence, and to be fed with Fantaſms and fruitleſs Speculations, which ſignify nothing to the ſpecifick Nature of Things; ſolid and uſeful Knowledge, by the *Inveſtigation* of *Cauſes*, *Principles*, *Energies*, *Powers*, and *Effects* of *Bodies* and *Things viſible*; and to improve them for the Good and Benefit of Mankind.

My Lord, That which the *Royal Society* needs to accompliſh an entire Freedom, and (by rendring their Circumſtances more eaſy) capable to ſubſiſt with Honour, and to reach indeed the glorious Ends of its Inſtitution, is an Eſtabliſhment in a more ſettled, appropriate, and commodious Place; having hitherto (like the *Tabernacle* in the *Wilderneſs*) been only *ambulatory* for almoſt Forty Years: But *Solomon* built the firſt Temple; and what forbids us to hope, that as *great* a Prince may build *Solomon*'s Houſe, as that *great Chancellor* (one of your Lordſhip's Learned Predeceſſors) had deſign'd the *Plan*; there being nothing in that *auguſt* and *noble Model* impoſſible, or beyond the Power of Nature and learned Induſtry.

Verulamii Atlantis.

Thus, whilſt King *Solomon*'s Temple was *conſecrated* to the God of *Nature*, and his true Worſhip, *This* may be *dedicated*, and ſet apart for the Works of *Nature*; deliver'd from thoſe Illuſions and Impoſtors, that are ſtill endeavouring to cloud and depreſs the true and ſubſtantial *Philoſophy*: A ſhallow and ſuperficial *Inſight* wherein (as that incomparable Perſon rightly obſerves) having made ſo many *Atheiſts*; whilſt a profound and thorough *Penetration* into her *Receſſes* (which is the Buſineſs of the *Royal Society*) would lead Men to the Knowledge and Admiration of the *glorious Author*.

And now, *my Lord*, I expect ſome will wonder what my Meaning is, to uſher in a *Trifle* with ſo much Magnificence, and end at laſt in a fine *Receipt* for the *dreſſing* of a *Sallet* with an handful of *Pot-herbs!* But yet, *my Lord*, this *Subject*, as low and deſpicable as it appears, challenges a Part of *Natural Hiſtory*; and the greateſt Princes have thought it no Diſgrace, not only to make it their *Diverſion*, but their *Care*, and to promote and encourage it in the midſt of their weightieſt Affairs: He who wrote of the *Cedar* of *Libanus*, wrote alſo of the *Hyſop which grows upon the Wall*.

To verify this, how much might I ſay of *Gardens* and *Rural Employments*, preferable to the Pomp and Grandeur of other Secular Buſineſs, and that in the Eſtimate of as Great Men as any Age has produc'd! And it is of ſuch *Great Souls* we have it recorded, That after they had perform'd the nobleſt Exploits for the Publick, they ſometimes chang'd their *Sceptres* for the *Spade*, and their *Purple* for the Gardiner's *Apron*. And of theſe, ſome, *My Lord*, were *Emperors*, *Kings*, *Conſuls*, *Dictators*, and Wiſe *Stateſmen*; who amidſt the moſt important Affairs, both in Peace and War, have quitted all their Pomp and Dignity

Exchange of this Learned Pleaſure: Not that of the moſt *refin'd*

Part

Part of *Agriculture* (the *Philoſophy* of the *Garden* and *Parterre* only) but of *Herbs* and wholſome *Sallets*, and other plain and uſeful Parts of *Geoponicks*, and wrote *Books* of *Tillage* and *Husbandry*; and took the *Plough-Tackle* for their *Banner*, and their *Names* from the *Grain* and *Pulſe* they ſow'd, as the Marks and Characters of the higheſt Honour.

But I proceed no farther on a *Topic* ſo well known to Your Lordſhip: Nor urge I Examples of ſuch Illuſtrious Perſons laying aſide their Grandeur, and even of deſerting their Stations; (which would infinitely prejudice the Publick, when worthy Men are in Place, and at the Helm) but to ſhew how conſiſtent the Diverſions of the *Garden* and *Villa* were, with the higheſt and buſieſt Employment of the *Commonwealth*; and never thought a Reproach, or the leaſt Diminution to the Gravity and Veneration due to their Perſons, and the Noble Rank they held.

Will Your Lordſhip give me leave to repeat what is ſaid of the younger *Pliny*, (Nephew to the *Naturaliſt*) and whom I think we may parallel with the Greateſt of his Time (and perhaps of any ſince) under the Worthieſt *Emperor* the *Roman* World ever had? A Perſon of vaſt Abilities, Rich, and High in his Maſter's Favour; that ſo husbanded his Time, as in the midſt of the weightieſt Affairs, to have anſwer'd and by his * *Example*, made good what I have ſaid on this Occaſion. The ancient and beſt Magiſtrates of *Rome*, allow'd but the *Ninth* Day for the *City* and *Publick Buſineſs*; the reſt for the *Country* and the *Sallet Garden*: There were then fewer *Cauſes* indeed at the *Bar*; but never greater *Juſtice*, nor better *Judges* and *Advocates*. And 'tis hence obſerved, that we hardly find a Great and Wiſe Man among the Ancients, *qui nullos habuit hortos*, excepting only *Pomponius Atticus*; whilſt his dear *Cicero* profeſſes, that he never laid out his Money more readily, than in the purchaſing of *Gardens*, and thoſe ſweet Retirements, for which he ſo often left the *Roſtra* (and Court of the greateſt and moſt flouriſhing State of the World) to viſit, prune, and water them with his own Hands.

But, *My Lord*, I forget with whom I am talking thus; and a *Gardiner* ought not to be ſo bold. The Preſent I humbly make your Lordſhip, is indeed but a *Sallet* of *crude Herbs:* But there is among them that which was the *Prize* at the *Iſthmian Games*; and your Lordſhip knows who it was both accepted and rewarded as deſpicable an Oblation of this kind. The Favour I humbly beg, is your Lordſhip's Pardon for this Preſumption. The Subject is *mean*, and requires it, and my *Reputation* in danger; ſhould your Lordſhip hence ſuſpect that one could never write ſo much of *dreſſing Sallets*, who minded any thing ſerious, beſides the gratifying a ſenſual Appetite with a voluptuary *Apician* Art.

Truly, *My Lord*, I am ſo far from deſigning to promote thoſe *Supplicia Luxuriæ*, (as *Seneca* calls them) by what I have here written; that were it in my Power, I would recall the World, if not altogether to their priſtine *Diet*, yet to a much more *wholſome* and *temperate* than is now in Faſhion: And what if they find me like to ſome who are ea-

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* *Si quid temporis à civilibus negotiis, quibus totum jam intenderat animum, ſuffurari potuit, colendis agris, priſcos illos Romanos* Numam Pompilium, Cincinnatum, Catonem, Fabios, Cicerones, *alioſque virtute claros viros imitare; qui in magno honore conſtituti, vites putare, ſtercorare agros, & irrigare nequaquam turpe & inhoneſtum putarunt.* In Vit. Plin. 2.

ger after *Hunting*, and other Field Sports, which are *laborious* Exercises; and *Fiſhing*, which is indeed a *lazy* one; who, after all their Pains and Fatigue, never eat what they take and catch in either? For ſome ſuch I have known: And tho' I cannot affirm ſo of my ſelf, (when a well dreſs'd and excellent *Sallet* is before me) I am yet a very moderate Eater of them. So as to this *Book-Luxury*, I can affirm, and that truly, what the *Poet* ſays of himſelf (on a leſs innocent Occaſion) *Laſciva pagina, vita proba.* God forbid, that after all I have advanced in Praiſe of *Sallets*, I ſhould be thought to plead for the Vice I cenſure, and chuſe that of *Epicurus* for my *Lemma*; *In hac arte conſenui*; or to have ſpent my time in nothing elſe. The *Plan* annex'd to theſe Papers, and the *Apparatus* made to ſuperſtruct upon it, would acquit me of having bent all my Contemplations on *Sallets* only. What I humbly offer your Lordſhip, is (as I ſaid) Part of *Naturul Hiſtory*, the Product of *Horticulture*, and the *Field*, dignified by the moſt Illuſtrious, and ſometimes tilled *Laureato Vomere*; which, as it concerns a Part of *Philoſophy*, I may (without Vanity) be allow'd to have taken ſome Pains in Cultivating, as an inferior Member of the *Royal Society*.

But, *My Lord*, whilſt You read on (if at leaſt you vouchſafe me that Honour to read at all) I am conſcious I rob the Publick of its moſt precious Moments.

I therefore humbly again implore your Lordſhip's Pardon: Nor indeed needed I to have ſaid half this, to kindle in your Breaſt that which is already ſhining there, (your Lordſhip's Eſteem of the *Royal Society*) after what you were pleas'd to expreſs in ſuch an obliging manner, when it was lately to wait upon your Lordſhip; among whom I had the Honour to be a Witneſs of your generous and favourable Acceptance of their Addreſſes; who am,

My Lord,

Your Lordſhip's

Moſt Humble and

Moſt Obedient Servant,

JOHN EVELYN.

THE

THE PREFACE.

THE *favourable Entertainment which the* Kalendar *has found, encouraging the* Bookſeller *to adventure upon a* Ninth Impreſſion, *I could not refuſe his Requeſt of my reviſing, and giving the beſt Improvement I was capable, to an* Inexhauſtible Subject, *as it regards a Part of* Horticulture; *and offer ſome little Aid to ſuch as love a Diverſion ſo Innocent and Laudable. There are thoſe of late, who have arrogated, and given the Glorious Title of* Compleat *and* Accompliſh'd Gardiners, *to what they have publiſh'd; as if there were nothing wanting, nothing more remaining, or farther to be expected from the Field; and that* Nature *had been quite emptied of all her fertile Store: Whilſt thoſe who thus magnify their Diſcoveries, have after all, penetrated but a very little way into this vaſt, ample, and as yet, unknown Territory: Who ſee not that it would ſtill require the Revolution of many Ages, deep and long* Experience, *for any Man to emerge that perfect and accompliſh'd Artiſt* Gardiner *they boaſt themſelves to be. Nor do I think Men will ever reach the End and far extended Limits of the* Vegetable Kingdom; *ſo incomprehenſible is the Variety it every Day produces, of the moſt uſeful and admirable of all the aſpectable Works of God; ſince almoſt all we* ſee, *and* touch, *and* taſte, *and* ſmell, eat *and* drink, *are* clad *with, and defended,* (*from the greateſt* Prince *to the meaneſt* Peaſant) *is furniſhed from that great and univerſal Plantation,* Epitomiz'd *in our* Gardens, *highly worth the Contemplation of the moſt profound Divine, and deepeſt* Philoſopher.

I ſhould be aſham'd to acknowledge how little I have advanc'd, could I find that ever any mortal Man from Adam, Noah, Solomon, Ariſtotle, Theophraſtus, Dioſcorides, *and the reſt of Nature's Interpreters, had ever arriv'd to the perfect Knowledge of any one* Plant, *or* vulgar Weed *whatſoever. But this perhaps may yet poſſibly be reſerv'd for another State of Things, and* longer Day; that is,* When Time ſhall be no more, but Knowledge ſhall be increas'd. *We have heard of one who ſtudied and contemplated the Nature of* Bees *only, for* Sixty Years: *After which you will not wonder, that a Perſon of my Acquaintance ſhould have ſpent almoſt* Forty, *in gathering and amaſſing Materials for an* Hortulan *Deſign, to ſo enormous*

* Ut hujuſmodi hiſtoriam vix dum incohatum, non ante abſolvendam putem, Exitio terras quam dabit una dies. *D. Raius* Præfat. Hiſt. Plan.

mous an Heap, as to fill ſome Thouſand Pages; *and yet be comprehended within two or three Acres of Ground; nay, within the Square of leſs than* One (*skilfully planted and cultivated*) *ſufficient to furniſh and entertain his Time and Thoughts all his Life long, with a moſt innocent, agreeable, and uſeful Employment. But you may juſtly wonder, and condemn the Vanity of it too, with that Reproach,*
Luke xv. 30. This Man began to build, but was not able to finiſh. *This has been the Fate of that Undertaking, and I dare promiſe, will be of whoſoever imagines* (*without the Circumſtances of extraordinary Aſſiſtance, and no ordinary Expence*) *to purſue the* Plan, *erect and finiſh the* Fabrick *as it ought to be.*

But this is that which abortives *the Perfection of the moſt glorious and uſeful Undertakings; the unſatiable coveting to exhauſt all that ſhould or can be ſaid upon every Head: If ſuch a one have any thing elſe to mind, or do in the World, let me tell him, he thinks of Building too late; and rarely find we any, who care to ſuperſtruct upon the Foundation of another, and whoſe* Idea's *are alike. There ought therefore to be as many* Hands *and* Subſidiaries *to ſuch a Deſign* (*and thoſe* Maſters *too*) *as there are diſtinct Parts of the Whole,* (*according to the ſubſequent Table,*) *that thoſe who have the Means and Courage may* (*though they do not undertake the* Whole) *finiſh a* Part *at leaſt, and in Time unite their Labours into one entire, compleat, and conſummate Work indeed.*

Of one *or* two *of theſe, I attempted only a* Specimen *in my* SILVA *and the* KALENDAR; Imperfect, *I ſay, becauſe they are both capable of Great Improvements: It is not therefore to be expected,* (*Let me uſe the Words of an old and experienc'd* Gardiner) Cuncta
Columella *de* R.R. *Lib.* v. *Cap.* 1. me dicturum, quæ vaſtitas ejus ſcientiæ contineret, ſed plurima; nam illud in unius hominis prudentiam cadere non poterit, neque eſt ulla Diſciplina aut Ars, quæ ſingulari conſummata ſit ingenio.

May it then ſuffice, aliquam partem tradidiſſe, *and that I have done my Endeavour.*

Inutilis olim
Ne Videar vixiſſe.

Much more might I add upon this charming and fruitful Subject (*I mean, concerning* Gardening:) *But this is not a Place to expatiate, deterr'd, as I have long ſince been, from ſo bold an Enterprize as the Fabrick I mentioned. I content my ſelf then with an* Humble Cottage *and a* Simple Potagere, *Appendant to the* Kalendar; *which, treating only* (*and that briefly*) *of the* Culture *of* moderate Gardens, *nothing ſeems to me ſhould be more* welcome *and* agreeable, *than whilſt the Product of them is come into more* Requeſt *and* Uſe *among us, than heretofore* (*beſide what we call and diſtinguiſh by the Name of* Fruit) *I did annex ſome particular Directions concerning* SALLETS.

THE

The Plan of a Royal Garden:

Deſcribing and Shewing the *Amplitude* and *Extent* of that Part of *Georgicks* which belongs to *Horticulture.*

In Three BOOKS.

BOOK I.

Chap. I. OF Principles *and* Elements *in general.*
Ch. II. *Of the Four* (*vulgarly reputed*) *Elements,* Fire, Air, Water, Earth.
Ch. III. *Of the* Cœleſtial Influences, *and particularly of the* Sun, Moon, *and of the* Climates.
Chap. IV. *Of the Four* Annual Seaſons.
Chap. V. *Of the Natural* Mould *and* Soil *of a Garden.*
Chap. VI. *Of* Compoſts *and* Stercoration, Repaſtination, Dreſſing *and* Stirring *the* Earth *and* Mould *of a Garden.*

BOOK II.

Chap. I. *A Garden* Deriv'd *and* Defin'd, *its* Dignity, Diſtinction, *and* Sorts.
Ch. II. *Of a* Gardiner, *how to be* qualify'd, regarded *and* rewarded; *his* Habitation, Cloathing, Diet, Under-Workmen *and* Aſſiſtants.
Ch. III. *Of the* Inſtruments *belonging to a Gardiner*; *their various* Uſes, *and* Mechanical Powers.
Ch. IV. *Of the* Terms *us'd and affected by Gardiners.*
Ch. V. *Of* Encloſing, Fencing, Platting, *and* diſpoſing *of the Ground*; *and of* Terraces, Walks, Alleys, Malls, Bowling-Greens, *&c.*
Ch. VI. *Of a* Seminary, Nurſeries; *and of Propagating* Trees, Plants *and* Flowers, Planting *and* Tranſplanting, *&c.*
Ch. VII. *Of* Knots, Trayle-work, Parterres, Compartiments, Borders, Banks *and* Emboſſments.
Ch. VIII. *Of* Groves, Labyrinths, Dedals, Cabinets, Cradles, Cloſe-Walks, Galleries, Pavilions, Portico's, Lanterns, *and other* Relievo's, *of* Topiary *and* Hortulan Architecture.
Ch. IX. *Of* Fountains, Jetto's, Caſcades, Rivulets, Piſcina's, Canals, Baths, *and other natural, and Artificial* Water-works.
Ch. X. *Of* Rocks, Grotts, Cryptæ, Mounts, Precipices, Ventiducts, Conſervatories, *of* Ice, *and* Snow, *and other Hortulan Refreſhments.*
Ch. XI. *Of* Statues, Buſts, Obelisks, Columns, Inſcriptions, Dials, Vaſa's, Perſpectives, Paintings, *and other Ornaments.*
Ch. XII. *Of* Gazon-Theatres, Amphitheatres, *Artificial* Echo's, Automata, *and* Hydraulick Muſick.
Ch. XIII. *Of* Aviaries, Apiaries, Vivaries, Inſects, &c.
Ch. XIV. *Of* Verdures, Perennial Greens, *and* Perpetual Springs.

Ch. XV *Of* Orangeries, Oporotheca's, Hybernacula, Stoves, *and* Conſervatories *of Tender* Plants, *and* Fruits, *and how to order them.*
Ch. XVI. *Of the* Coronary Garden: Flowers *and* Rare Plants, *how they are to be* Raiſed, Governed, *and* Improved, *and how the Gardiner is to keep his* Regiſter.
Ch. XVII. *Of the* Philoſophical Medical *Garden.*
Ch. XVIII. *Of* Stupendous *and* Wonderful Plants.
Ch. XIX. *Of the* Hort-Yard *and* Potagere; *and what* Fruit-Trees, Olitory, *and* Eſculent Plants, *may be admitted into a Garden of Pleaſure.*
Ch. XX. *Of* Sallets.
Ch. XXI. *Of a* Vineyard, *and Directions concerning the making of* Wine, *and other* Vinous Liquors, *and of* Teas.
Ch. XXII. *Of* Watering, Pruning, Plaſhing, Palliſading, Nailing, Clipping, Mowing, Rowling, Weeding, Cleanſing, *&c.*
Ch. XXIII. *Of the* Enemies *and* Infirmities *to which Gardens are obnoxious, together with the* Remedies.
Ch. XXIV. *Of the Gardiner's* Almanack *or* Kalendarium Hortenſe, *directing what he is to do Monthly, and what* Fruits *and* Flowers *are in prime.*

BOOK III.

Chap. I. *Of* Conſerving, Properating, Retarding, Multiplying, Tranſmuting, *and Altering the* Species, Forms, *and* (*reputed*) Subſtantial Qualities *of* Plants, Fruits *and* Flowers.
Ch. II. *Of the Hortulan* Elaboratory, *and of* diſtilling *and* extracting *of* Waters, Spirits, Eſſences, Salts, Colours, *Reſuſcitation of* Plants, *with other rare Experiments, and an account of their* Virtues.
Ch. III. *Of Compoſing the* Hortus Hyemalis, *and making Books of* Natural, Arid Plants *and* Flowers, *with ſeveral Ways of Preſerving them in their* Beauty.
Ch. IV. *Of* Painting *of Flowers, Flowers* enamell'd, Silk, Callico's, Paper, Wax, Gums, Paſts, Horns, Glaſs, Shells, Feathers, Moſs, Pietra Commeſſa, Inlayings, Embroyderies, Carvings, *and other Artificial Repreſentations of them.*
Ch. V. *Of* Crowns, Chaplets, Garlands, Feſtoons, Encarpa, Flower-Pots, Noſegays, Poeſies, Deckings, *and other* Flowery Pomps.
Ch. VI. *Of* Hortulan Laws *and* Privileges.
Ch. VII. *Of the* Hortulan Study, *and of a* Library, Authors, *and* Books *aſſiſtant to it.*
Ch. VIII. *Of* Hortulan Entertainments, Natural, Divine, Moral *and* Political; *with divers* Hiſtorical *Paſſages, and Solemnities, to ſhew the* Riches, Beauty, Wonder, Plenty, Delight, *and Univerſal Uſe of Gardens.*
Ch. IX. *Of Garden* Burial.
Ch. X. *Of* Paradiſe, *and of the moſt* Famous Gardens *in the World,* Antient *and* Modern.
Ch. XI. *The Deſcription of a* Villa.
Ch. XII. *The* Corollary *and* Concluſion.

—— Laudato ingentia rura,
Exiguum colito. ——

ACETA-

ACETARIA.

SALLETS in general consist of certain *Esculent* Plants and Herbs, improv'd by Culture, Industry and Art of the *Gardiner*; or, as others say, they are a Composition of *Edule* Plants and Roots of several kinds, to be eaten *raw* or *green*, *blanch'd* or *candied*, simple and *per se*, or intermingl'd with others according to the Season. The boyl'd, bak'd, pickl'd, or otherwise disguis'd, variously accommodated by the skilful Cooks, to render them grateful to the more feminine Palate, or Herbs rather for the Pot, &c. challenge not the Name of *Sallet* so properly here, tho' sometimes mention'd: And therefore,

Those who *criticize* not so nicely upon the Word, seem to distinguish the [a] *Olera* (which were never eaten *raw*) from *Acetaria*, which were never boyl'd; and so they derive the Etymology of *Olus* from *Olla, the Pot*. But others deduce it from Ὅλος, comprehending the *universal Genus* of the Vegetable Kingdom, as from Πᾶν *Panis*; esteeming, that he who had [b] *Bread* and *Herbs* was sufficiently bless'd with all a frugal Man could need or desire. Others again will have it *ab olendo*, i. e. *crescendo*, from its continual *Growth* and *springing up*: So the younger *Scaliger* on *Varro*. But his Father *Julius* extends it not so generally to all Plants, as to all the *Esculents*, according to the Text: *We call those* Olera (says [c] *Theophrastus*) *which are commonly eaten*; in which Sense it may be taken, to include both *boyl'd* and *raw*. Last of all, *ab alendo*, as having been the original and genuine Food of all Mankind from the [d] Creation.

A great deal more of this learned Stuff were to be pick'd up from the *Cumini Sectores*, and impertinently curious; whilst as it concerns the Business in hand, we are, by *Sallet*, to understand a particular Composition of certain *crude* and fresh Herbs, such as usually are, or may safely be, eaten with some *acetous* Juice, *Oyl*, *Salt*, &c. to give them a grateful Gust and *Vehicle*; exclusive of the [e] ψυχαὶ τράπεζαι, eaten without their due Correctives, which the Learned [f] *Salmasius*, and indeed generally the [g] old *Physicians* affirm (and that truly) all crude and raw λάχανα require to render them wholsome; so as probably they were from hence, as [h] *Pliny* thinks, call'd *Acetaria*, and not (as *Hermolaus* and some others) *Acceptaria ab Accipiendo*; nor from *Accedere*, tho' so [i] ready at hand, and easily dress'd, requiring neither

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[a] Olera à frigidis distinct. *See* Spartianus in Pescennio. Salmas. in Jul. Capitolin.

[b] Panis erat primis virides mortalibus Herbæ;
Quas tellus nullo sollicitante dabat.
Et modo carpebant vivaci cespite gramen;
Nunc epulæ tenera fronde cacumen erant. *Ovid. Fastor.* iv.

[c] Καλοῦσιν δὲ λάχανα τὰ πρὸς τὴν ἡμετέραν χρείαν. Theophrast. Plant. lib. vii. cap. 7.

[d] Gen. i. 29.

[e] Plutarch. Sympos.

[f] Salmas. in Solin. *against* Hieron. Mercurialis.

[g] Galen. 2. R. Aliment. cap. 1. Et Simp. Medic. Averroes, lib. v. Colloc.

[h] Plin. lib. xix. cap. 4.

[i] Convictus facilis sine arte mensa. *Mart. Ep.* 74.

Fire, *Coſt*, or *Attendance*, to boyl, roaſt, and prepare them, as did Fleſh and other Proviſions; from which, and other Prerogatives, they were always in uſe, &c. And hence indeed the more frugal *Italians* and *French*, to this Day, gather *Ogni Verdura*, any thing almoſt that is green and tender, to the very Tops of *Brambles* and *Nettles*; ſo as every Hedge affords a *Sallet* (not unagreeable) ſeaſon'd with its proper *Oxybaphon* of *Vinegar*, *Salt*, *Oyl*, &c. which, doubtleſs, gives it both the Reliſh and Name of *Salad*, *Enſalada* †, as with us of *Sallet*, from the *Sapidity*, which renders not *Plants* and *Herbs* alone, but Men themſelves, and their Converſations, pleaſant and agreeable: But of this enough, and perhaps too much; leſt whilſt I write of *Salt* and *Sallet*, I appear myſelf *inſipid*. I paſs therefore to the Ingredients, which we will call

† Ἅπυσον προσλῶ, *which* Suidas *calls* λάχανα Olera quæ cruda ſumuntur ex Aceto. *Harduin in loc.*

Furniture *and* Materials.

THE *Materials* of *Sallets*, which together with the groſſer *Olera*, conſiſt of *Roots*, *Stalks*, *Leaves*, *Buds*, *Flowers*, &c. (*Fruits* belonging to another Claſs) would require a much ampler Volume than would ſuit our *Kalendar*, (of which this pretends to be an *Appendix* only) ſhould we extend the following Catalogue farther than to a brief Enumeration only of ſuch *Herbaceous* Plants, *Oluſcula* and ſmaller *Eſculents*, as are chiefly us'd in cold *Sallets*, of whoſe Culture we have treated there; and as we gather them from the *Mother* and *genial Bed*, with a Touch only of their Qualities, for Reaſons hereafter given.

1. Alexander's *Hippoſelinum*; *S. Smyrnium vulgare*, French *Perſil Macedoine* (much of the Nature of *Parſly*) is moderately hot, and of a cleanſing Faculty, deobſtructing, nouriſhing and comforting the Stomach. The gentle freſh Sprouts, Buds and Tops are to be choſen, and the Stalks eaten in the Spring; and when *blanch'd*, in Winter likewiſe, with *Oyl*, *Pepper*, *Salt*, &c. by themſelves, or in Compoſition: They make alſo an excellent *Vernal* Pottage.

2. Artichaux, *Cinara*, (*Carduus Sativus*) hot and dry. The Heads being ſlit in Quarters, firſt eaten raw with *Oyl*, a little *Vinegar*, *Salt* and *Pepper*, gratefully recommend a Glaſs of Wine: Dr. *Muffet* ſays, at the End of Meals.

They are likewiſe, whilſt tender and ſmall, fried in freſh *Butter* criſp with *Parſly*. But then become a moſt delicate and excellent Reſtorative, when full grown, they are boyl'd the common way. The *Bottoms* are alſo bak'd in *Pies*, with *Marrow*, *Dates*, and other rich Ingredients. In *Italy* they ſometimes broil them, and as the ſcaly Leaves open, baſte them with freſh and ſweet *Oyl*; but with Care extraordinary, for if a Drop fall upon the Coals, all is marr'd; that Hazard eſcap'd, they eat them with the Juice of *Orange* and *Sugar*.

The Stalk is *blanch'd* in *Autumn*, and the *Pith* eaten raw or boil'd. The way of preſerving them freſh all Winter, is by ſeparating the *Bottoms* from the *Leaves*, and, after parboiling, allowing to every *Bottom* a ſmall Earthen glaz'd Pot; burying it all over in freſh melted *Butter*, as they do Wild-Fowl, &c. Or if more than one, in a larger Pot, in the ſame Bed and Covering, *Layer* upon *Layer*.

They

They are alſo preſerv'd by ſtringing them on Pack-thread, a clean Paper being put between every *Bottom*, to hinder them from touching one another, and ſo hung up in a dry Place. They are likewiſe *pickled*.

'Tis not very long ſince this noble *Thiſtle* came firſt into *Italy*, improv'd to this Magnitude by Culture; and ſo rare in *England*, that they were commonly ſold for *Crowns* a-piece: But what *Carthage* yearly ſpent in them (as *Pliny* computes the Sum) amounted to *Seſtertia Sena Millia*, 3000 *l. Sterling*.

Note, That the *Spaniſh Cardon*, *Thiſtle*, or *Cinera Spinoſa*, a wild and ſmaller *Artichoak*, with ſharp pointed Leaves, and leſſer Head; the *Rib* or *Coſta* of the Leaves being *blanch'd* and tender, (the Skin ſtripp'd off) are ſerv'd up *a la Poiverade* (that is with *Oil*, *Pepper*, &c.) as the *French* Term is; and by them are called *Coſtones des Cardons d'Eſpagno*, or *Cardis*. In *France* they *blanch* likewiſe the *Leaves* of the true *Artichoaks:* But the *Cardes des Cardons d'Eſpagno*, are more eſteem'd by far.

Aſparagus, See *Sparagus*.

3. Baſil, *Baſilicum*, *Ocimum*, imparts a grateful Flavour, if not too ſtrong, ſomewhat offenſive to the Eyes; and therefore the tender Tops to be very ſparingly us'd in our *Sallet*.

4. Baulm, *Meliſſa Hortenſis*, hot and dry, cordial and exhilarating, ſovereign for the Brain, ſtrengthning the Memory, and powerfully chaſing away *Melancholy*. The tender Leaves are us'd in Compoſition with other Herbs; and the Sprigs freſh gather'd, put into *Wine* or other Drinks, during the Heat of Summer, give it a marvellous Quickneſs. This noble Plant yields an incomparable *Wine*, made as is that of *Cowſlip*-Flowers.

5. Beet, *Beta*; of which there is both *White*, or *Sicla Officinarum*, B. P. (the *French Poirée*) and the *Rubra* or *Red Radice Rapæ*, or *Bete-Raves*. The *Coſta*, or Rib of the broad Leaves of the *White Beet* (by the *French* call'd the *Cardes de Porrée*) being boil'd, melts, and eats like Marrow. And the *Roots* (eſpecially of the *Red*) being boil'd, cut into thin Slices, when cold, is of it ſelf a grateful Winter *Sallet*; or being mingled with other *Oluſcula*, *Oil*, *Vinegar*, *Salt*, &c. 'Tis of Quality cold and moiſt, and naturally ſomewhat *Laxative:* But, however, by the *Epigrammatiſt* ſtil'd *fooliſh* and *inſipid*, as *Innocentior quam Olus* (for ſo the learned * *Harduin* reads the Place) 'tis by *Diphilus* of old, and others ſince, preferr'd before *Cabbage*, as of better Nouriſhment: *Martial* (not unlearn'd in the Art of *Sallet*) commends it with *Wine* and *Pepper:* He names it indeed —— *Fabrorum prandia*, for its being ſo vulgar. But eaten with *Oil* and *Vinegar*, as uſually, it is no deſpicable *Sallet*. There is a *Beet* growing near the Sea, *Beta Sylveſtris maritima*, which is the moſt delicate of all. The Roots of the *Red Beet*, pared into thin Slices and Circles, are, by the *French* and *Italians*, contriv'd into curious Figures to adorn their *Sallets*.

* Plin. H. Nat. *lib.* xix. *cap.* 8.

6. Blite, *Blitum Hortenſe*; Engliſh *Mercury*, or (as our Country Houſe-wives call it) *All-good*, *Blitum bonus Henricus Lapathum Unctuoſum ſive tota bona Spinachiæ faciæ:* The gentle *Turiones*, and Tops may be eaten as *Sparagus*, or ſodden in Pottage, and are a very ſalubrious *Eſculent:* There is both a white and red, much us'd in *Spain*

and *Italy*; but beſides its Humidity and deterſive Nature, 'tis *inſipid* enough.

7. Borrage, *Bugloſſum Latifolium Borrago* (*Gaudia ſemper ago*) hot and kindly moiſt, purifying the Blood, is an exhilarating Cordial, of a pleaſant Flavour: The tender Leaves, and Flowers eſpecially, may be eaten in Compoſition, but above all, the Sprigs in *Wine*, like thoſe of *Baum*, are of known Virtue to revive the *Hypochondriac*, and chear the hard Student. See *Bugloſs*.

8. Brooklime, *Anagallis aquatica*, or *Becca bunga* (French *Mouron d'Eau*; moderately hot and moiſt, prevalent in the *Scorbute* and *Stone*.

9. Bucks-horn, *or* Harts-horn Plantain, (*Cornu Cervinum*, *Coronopus Hortenſis*) the beſt is the broad-leav'd *curl'd Bucks-horn*, which may be eaten in *Sallets*, whilſt young and tender.

10. Bugloſs, *Bugloſſum Anguſtifolium*; in Nature much like *Borrage*, yet ſomething more aſtringent. The Flowers of both, with the entire Plant, greatly reſtorative, being Conſerv'd: And for the reſt, ſo much commended by *Averroes*, that for its Effects, cheriſhing the Spirits, juſtly call'd *Euphroſynum*: Nay, ſome will have it the *Nepenthes* of *Homer*: But indeed, what we now call *Bugloſs*, was not that of the Ancients, but rather *Borrage*, for the like Virtue named *Corrago*.

11. Burnet, is the *Pimpinella Sanguiſorba*, or *Pimprinelle*; eaten by the *French* and *Italians*; eſteem'd of ſo chearing and exhilarating a Quality, and ſo generally commended, (as giving it admittance to all *Sallets*,) 'tis paſs'd into a Proverb.

L'Inſalata non è buon, ne bella,
Ove non è la Pimpinella,

But a freſh Sprig in *Wine* recommends it to us as its moſt genuine Element.

12. Buds, *Gemmæ*; not only thoſe *Edule* Garden Plants are preferable to other leſs tender Parts, but even the *Turiones*, and firſt Rudiments and Tops, gather'd from wild Plants, in *Woods* and *Fields*, make delicious *Sallets*: Witneſs the *Buds* taken out of the *Craws* of *Stock-doves* in the Spring; nay, the *Buds* and tender *Seed-Veſſels*, or early *Fruits* of ſome *Plants*, when *muriated* or *pickled*, are juſtly eſteem'd, though no other part of the Plant from which they are gather'd are eatable; ſuch as *Aſhen-Keys*, *Broom-Buds*, hot and dry, retaining the virtue of *Capers*, eſteem'd to be very opening, and prevalent againſt the *Spleen* and *Scurvy*; and being *Pickled*, are ſprinkled among the *Sallets*, or eaten by themſelves. But the *Aſpargi*, or tender Sprouts of any Sallet-Herbs, when they little more than peep out of the Ground, retaining their *Seed-leaves*, are ſo highly eſteem'd by many who are nicely critical in *Sallets*, that they will not eat them when they are grown larger; and therefore cauſe *Sallet-Seeds* to be ſown on *hot Beds*, not in Winter only, when other choice *Sallets* cannot be had, but every Month of the Year, far preferring them to any *Sallet-Herbs* whatſoever, run up to more Maturity. But concerning this haſty Production of the *Hot-Bed*, the Effect of artificial *Compoſts*, ſee what we have ſaid hereafter.

The *Gemmæ* and *Summities* of ſeveral Plants, are exceedingly agreeable to the *Palate*, in the Compoſition of *Sallets*; though their leſs tender Parts are nauſeous; as of *Baſil*, *Chervile*, and many others.

13. Cab-

13. Cabbage, *Braſſica Chaux*, (and its ſeveral kinds) *Pompey*'s beloved Diſh, ſo highly celebrated by old * *Cato*, *Pythagoras*, and *Chryſippus* the Phyſician (as the only *Panacea*) is not ſo generally magnify'd by the reſt of Doctors, as affording but a craſs and melancholy Juice; yet *looſening* if but moderately boil'd; if overmuch, *aſtringent*, according to *C. Celſus*; and therefore ſeldom eaten raw, excepting by the *Dutch*. The *Cymæ*, or Sprouts rather of the *Cole*, are very delicate, ſo boil'd as to retain their Verdure and green Colour. In raiſing this *Plant*, great Care is to be had of the Seed. The beſt comes from *Denmark* and *Ruſſia*, or from *Aleppo*. Of the *French*, the *Pancaliere à la large Cóte*, the white, large, and ponderous, are to be choſen, and ſo the *Cauly-flower*, *Braſſica Cauliflora* (anciently unknown:) Some ſteep them in Milk, and ſeethe them again in Beef-Broth: Of old, they added a little *Nitre*. The *Broccoli* from *Naples*, perhaps the *Halmyridia* of *Pliny* (or *Athenæus* rather) *Capitata marina & florida*, our *Sea-keele* (the ancient *Crambe*) and growing on our Coaſt, are very delicate, as are the *Savoys*, commended for being not ſo rank, but agreeable to moſt *Palates*, and of better Nouriſhment: In general, *Cabbages* are thought to allay Fumes, and prevent Intoxication: But ſome will have them noxious to the Sight; others impute it to the *Cauly-flower* rather: But whilſt the learned are not agreed about it, *Theophraſtus* affirms the contrary, and *Pliny* commends the Juice raw, with a little *Honey*, for the moiſt and weeping Eye, not the dry or dull. But after all, *Cabbage* ('tis confeſs'd) is greatly accus'd for lying undigeſted in the Stomach, and provoking Eructations; which makes me wonder at the Veneration we read the Ancients had for them, calling them *Divine*, and ſwearing, *per Braſſicam*; and for 600 Years held by the *Romans* a *Panacea*. 'Tis ſcarce an Hundred Years ſince we firſt had *Cabbages* out of *Holland*. One of the Sir *Anthony Aſhleys* of *Wiburg St. Giles* in *Dorſetſhire*, being (as I am told) the firſt who planted them in *England*. The *Dutch* ſhred *Red Cabbage*, and dreſs'd with *Oil* and *Vinegar*, eat it raw.

* *De* R. R. *cap.* clvii.

Cardon, See *Artichaux*.

14. Carrots, *Dauci*, or *Paſtinaca Sativa tenuifolia*; temperately warm and dry, Spicy: The beſt are yellow, very nouriſhing. Let them be rais'd in Ground naturally rich, but not too heavy. *Ale* brew'd with the wild *Dauor-Seed*, is exceedingly commended by thoſe who are afflicted with the *Stone* and *Gravel*.

15. Chervile, *Chærophillum*, *Sativum Myrrhis*; the ſweet, aromatick (and as the *French* call it, *Muſque*) *Spaniſh Chervile*, moderately hot and dry, is beſt: The tender *Cimæ*, and Tops, with other Herbs, are never to be wanting in our *Sallets*, (as long as they may be had) being exceedingly wholſome, and chearing the Spirits: The *Roots* are alſo boil'd, and eaten cold; much commended for aged Perſons: This (as likewiſe *Spinach*) is us'd in *Tarts*, and ſerves alone for divers Sauces.

Chalots,
Cibbols, } *Vide* Onions, *Schænopræſſon*.
Cives,

16. Clary, *Horminum Sativum Sclarea dictum*; when tender, not to be rejected; and, in *Omlets*, made up with *Cream*, fried in Sweet *Butter*, are eaten with *Sugar*, Juice of *Orange* or *Lemon*.

17. Clavers, Goose-grass, *Aparine*, or *Philanthropos Dioscor.* &c. the tender Winders, with young *Nettle-tops*, are us'd in *Lenten* Pottages.

18. Corn-Sallet, *or* Lambs-Lettuce, *Valerianella Campestris in odora major*, B. P. *Album olus Dod. Lactuca agnina* (by the *French*, *Maches*;) loosening and refreshing: The Tops and Leaves being a *Sallet* of themselves, seasonably eaten with other Salleting, the whole Winter long, and early Spring. They call them *Salad de Preter*, for their being generally eaten in *Lent*.

19. Cowslips, *Verbascum pratense odoratum*, or *Paralysis*: See *Flowers*.

20. Cresses, *Nasturtium Hortense*, Garden *Cresses*; the *broad-leav'd* best to be monthly sown: But above all, the *Indian* (by the *French* called *Capuchin*) moderately hot, and aromatick, quicken the torpent Spirits, and purge the Brain, and are of singular Effect against the *Scorbute*. Both the *Flowers*, tender *Leaves*, *Calices*, *Capuchin Capers* and *Flowers*, are laudably mixed with the colder Plants. The *Buds*, as also the young green *Seeds*, being pickl'd or candy'd, are likewise us'd in Strewings all Winter. There is the *Naster-Hybernicum* commended also for an *Antiscorbutick* Sallet, and likewise the vulgar *Water-Cress* boil'd in *Lenten Pottage*, and whilst the *Leaves* are tender (being all of the same Nature, tho' of different Degrees and Tribes, and best for raw and cold Stomachs) may properly be eaten in the Spring, but nourish little.

Note, In the mean time, that *Cresses* (being of several Tribes) the *Indian Nasturtium* is *Planta sui generis*, quite of a different *Genus*: But for that Cress-like Mordacity are called all *Cresses*, and therefore here ranged together.

21. Cucumber, *Cucumis Sativus*; tho' very cold and moist, the most approved *Sallet* alone, or in Composition of all the *Vinaigrets*, to sharpen the Appetite and cool the Liver *, &c. if rightly prepar'd; that is, by rectifying the vulgar Mistake of altogether extracting the Juice, in which it should rather be soak'd: Nor ought it to be over-*oyl'd*, too much abating of its grateful Acidity, and palling the Taste, from a Contrariety of Particles. Let them therefore be pared, and cut in thin Slices, with a Slice or two of *Onion* to correct the Crudity, macerated in the Juice, often turn'd, and moderately drain'd. Others prepare them by shaking the Slices between two Dishes, and dress them with very little *Oyl*, well beaten, and mingled with the Juice of *Limon*, *Orange* or *Vinegar*, *Salt* and *Pepper*. Some again (and indeed the most approv'd) eat them as soon as they are cut, retaining their Liquor, which being exhausted (by the former Method) have nothing remaining in them to help the Concoction. Of old, they † boil'd the *Cucumber*, and paring off the Rind, eat them with *Oyl*, *Vinegar* and *Honey*; *Sugar* not being so well known. Lastly, the *Pulp* in *Broth* is greatly refreshing, and may be mingled in most *Sallets* without the least Damage, contrary to the common Opinion; it not being long since *Cucumber*, however dress'd, was thought fit to be thrown away, being accounted little better than Poison: And very probably it was so, when the *innate Liquor* (which helps to concoct the cold, almost indigestible Substance) was exhausted. *Tavernier* tells us, that in the *Levant*, if a Child cry for something to eat, they give it a raw *Cucumber* instead of Bread. The young ones may be boil'd in *White-Wine*. The smaller

* Ἐφθὸς, δοσικυὸς, ἀπαλὸς, ἄλυσσος, οὐρητικὸς. Athen.

† Cucumis elixus delicatior, innocentior. Athenæus.

ſmaller Sort (known by the Name of *Gerckems*) *muriated* with the Seeds of *Dill*, and the *Mango* Pickle, are for the Winter.

22. Daiſy, *Bupthalmum*, Ox-Eye, or *Bellis-major:* The young Roots are frequently eaten by the *Spaniards* and *Italians* all the Spring till *June*.

23. Dandelion, *Dens Leonis*, *Condrilla*; macerated in ſeveral Waters, to extract the Bitterneſs; tho' ſomewhat opening, is very wholſome, and little inferior to *Succory*, *Endive*, &c. The Tops of the Roots dug out of the Ground, with the *Tufts* of the *Leaves* remaining thereon, ſo far as they are blanch'd, (by being cover'd in the Earth when they grow) are of late Years gather'd in the Spring, (till ſuch time as the *Flower-Stalks* are ſhot up) and ſold in moſt *Herb-Shops* about *London*, for being a wonderful Purifier of the Blood, and *Antiſcorbutic*; upon which Account they are juſtly eſteem'd an excellent *Vernal Sallet*. It was with this homely *Fare* the Good-Wife *Hecate* entertain'd *Theſeus*. See *Sowthiſtle*.

24. Dock, *Oxylapathum*, or ſharp-pointed Dock: Emollient, and tho' otherwiſe not for our *Sallet*, the Roots brew'd in Ale or Beer are excellent for the *Scorbute*. See *Patience*.

25. Earth-Nuts, *Bulbo-Caſtanum*, called in the *North*, where they moſt abound, *Kopper-nuts*, *Pig-nuts*, and *Ger-nuts*; (found alſo in divers Places of *Surrey* near *Kingſton*, and other Parts, in Meadows and Graſs-Fields) are of the *Umbelliferous* Tribe; they flower in *June* and *July*, but the Nuts are in their Prime in *May*, or Beginning of *June*, when the Stalk begins to appear, by which they are the more eaſily diſcovered. The Rind par'd off, are eaten crude by Ruſticks, with a little Pepper; but are beſt boil'd like other Roots, or in Pottage rather, and are ſweet and nouriſhing.

26. Elder, *Sambucus:* The Flowers infus'd in *Vinegar*, grateful both to the Stomach and Taſte; attenuates thick and viſcid Humours; and tho' the Leaves are ſomewhat rank of Smell, and ſo not commendable in *Sallet*, they are otherwiſe (as indeed is the entire Shrub) of the moſt ſovereign Virtue; and the Spring Buds and tender Leaves, excellently wholſome in Pottage at that Seaſon of the Year. Small Ale in which *Elder-Flowers* have been infus'd, is by many eſteem'd ſo ſalubrious and palatable, as it is of late grown into ſo great Vogue, that it is to be had in many of the publick Eating-Houſes about Town. See *Flowers*.

27. Endive, *Endivia*, *Intubus Sativa*, Garden broad-leav'd, different from the *Erratic*, or wild, (tho' probably by Culture only) the largeſt, whiteſt, and tendereſt Leaves, beſt boil'd and leſs crude. It is naturally cold, profitable for hot Stomachs; *inciſive* and opening Obſtructions of the Liver. The curled is more delicate, being eaten alone, or in Compoſition, with the uſual *Intinctus*. It is alſo excellent, being boil'd; the middle Part of the *blanch'd Leaves* ſeparated, eats firm, and the ampler *Leaves*, by many, preferr'd before *Lettuce*. See *Succory*.

Eſchalot, ſee *Onions*.

28. Fennel, *Fæniculum*. We have it from *Bologna*, but the ſweeteſt and moſt aromatick comes from the *Azores* (*Fæniculum dulce Azoricum*;) hot and dry, expels Wind, ſharpens the Sight, and recreates the Brain; eſpecially the tender *Umbella*, and young Seeds annex'd to them. The Stalks, white, plump and ſoft, are to be peel'd, and then

dreſs'd like *Sellery*. The early tender Tufts of the emerging Leaves being minc'd, are eaten alone with *Vinegar*, or *Oyl* and *Pepper*, and to correct the colder Materials, enter properly into Compoſition. The *Italians* eat the *blanch'd* Stalk (which they call *Cartucci*) all Winter long. There is a very ſmall *Green Worm*, which ſometimes lodges in the Stem of this Plant, which is to be taken out, as the *Red* one in that of *Sellery*.

29. Flowers, *Flores*; chiefly of the *Aromatic Eſculents* and Plants are preferable, as generally endow'd with the Virtues of their *Simples* in a more intenſe degree; and may therefore be eaten alone in their proper Vehicles, or Compoſition with other *Salleting* ſprinkl'd among them: But give a more palatable Reliſh, being infus'd in *Vinegar*; eſpecially thoſe of the *Clove-July-flower*, *Elder*, *Orange*, *Cowſlip*, *Roſemary*, *Arch-Angel*, *Sage*, *Naſturtium Indicum*, &c. Some of them are pickl'd, and divers of them make alſo very pleaſant and wholſome *Theas*, as do likewiſe the wild *Time*, *Bugloſs*, *Mint*, &c.

30. Garlick, *Allium*; dry towards Exceſs; and tho' both by *Spaniards* and *Italians*, and the more Southern People, familiarly eaten with almoſt every thing, and eſteem'd of ſuch ſingular Virtue to help Concoction, and thought a Charm againſt all Infection and Poiſon (by which it has obtain'd the Name of the *Countryman's Theriacle*) we yet think it more proper for our Northern Ruſtics, eſpecially living in *uliginous* and moiſt Places, or ſuch as uſe the Sea: Whilſt we abſolutely forbid it Entrance into our Salleting, by reaſon of its intolerable Rankneſs; and which made it ſo deteſted of old, that the eating of it was (as we read) Part of the Puniſhment for ſuch as had committed the horrideſt Crimes. To be ſure, 'tis not fit for Ladies Palates, nor thoſe who court them, farther than to permit a light touch on the Diſh with a *Clove* thereof, much better ſupply'd by the gentler *Roccombole*.

Note, That in *Spain* they ſometimes eat Garlick boil'd, which taming its Fierceneſs turns it into Nouriſhment, or rather Medicine.

31. *Roccombole* or *Rocembole*, Names of late Years not known with us; are diſtinguiſh'd by thoſe ſmall *Bulbs* which compoſe the Head of the *Spaniſh Vipers*, *Garlick Ophioſcoridon*, or *Scorodopraſſum alterum bulboſo & convoluto capite*.

32. Leeks, *Porrum Capitatum*; hot, and of Virtue ſaid to be prolifick, ſince *Latona*, the Mother of *Apollo*, long'd after them. The *Welch*, who eat them much, are obſerv'd to be very fruitful; they are alſo friendly to the Lungs and Stomach, being ſod in *Milk*; a few therefore of the tender and green *Summities* a little ſhred, do not amiſs in Compoſitions.

Garlick, *Roccombole*, and *Leeks*, are all of the ſame Affinity. *Bulbs* with ſolid flat Leaves; *Graveolentes*, ſtrong ſcented *Bulbs*, and would be very nauſeous to us, eſpecially our Ladies, unleſs they were as generally eaten by that nice Sex, as they are among thoſe of *Spain*. Near related to theſe, are *Onions*; which we refer to in their Place in the Alphabet.

Guiney-Pepper, *Capſicum*, is a Species of *Solanum*, without any relation to our *Pepper*, but for its Piccancy and Mordacity; which we ſhall ſay more of hereafter.

33. Goats-beard, *Trago-pogon*; but of late they have *Italianiz'd* the Name, and now generally call it *Salſifix*; and our Seed-Sellers, to diſguiſe it, being a very common Field Herb, growing in moſt Parts of *England*,

England, would have it thought (with many others) an Exotick, and call it *Salſify* and *Saſſify*; whilſt, by whatever Name dignify'd or diſtinguiſh'd, it muſt be own'd to be an excellent *Sallet*-Root, and very nutritive, and may be ſtew'd and dreſs'd as *Sorzonera*, exceedingly amicable to the Breaſt.

34. Hops, *Lupulus*; hot and moiſt, rather *Medicinal* than fit for *Sallets*: The *Buds* and young *Turiones* of the *Tendrels* excepted, which may be eaten raw; but more conveniently being boil'd, and cold, like *Aſparagus*: They are *Diuretic*; depurate the Blood, open Obſtructions, very wholſome and grateful to the *Palate*.

35. Hyſſop, *Hyſſopus*; *Thymus Capitatus Creticus*; *Majoran*, *Winter-Savory*, *Satureia domeſtica*, *Thymus vulgaris*, *Caltha vulgaris*, *Mary-gold*, &c. as all hot, ſpicy *Aromatics*, (commonly growing in *Kitchen-Gardens*) are of Faculty to comfort and ſtrengthen; prevalent againſt Melancholy and Phlegm: Plants, like theſe, going under the Names of *Pot-Herbs*, are much more proper for *Broths* and *Decoctions*, than the tender *Sallet*: Yet the *Tops* and *Flowers* reduc'd to Powder, are by ſome reſerv'd for Strewings upon the colder Ingredients; communicating no ungrateful Fragrancy: See the true *Thyme* of the *Ancients*.

36. Jack-by-the-Hedge, *Aliaria*, (ſo call'd from its *Allium*-like *Sapor* and *Odour*) or *Sauce-alone*; has many Medicinal Properties, and is eaten, as other *Sallets*, by all Lovers of *Garlick*, (the Antients us'd it as a *Succedaneum* to *Scordium*) eſpecially by Country-People, growing wild under their Banks and Hedges.

37. Judas's-Tree, *Arbor Judæ*: Its pretty light-colour'd *Papilonaceous* Flowers have a very grateful Acidity, and thereby gain'd Admittance amongſt our *Acetaria*.

Leeks, See *Garlick*.

38. Lettuce, *Lactuca Sativa*: Tho' by *Metaphor* call'd * *Mortuorum Cibi*, (to ſay nothing of † *Adonis* and his ſad *Miſtreſs*) by reaſon of its *Soporiferous* Quality, ever was, and ſtill continues, the principal Foundation of the univerſal *Tribe* of *Sallets*; which is too cool and refreſh, beſides its other Properties: And therefore in ſuch high Eſteem with the Ancients, that divers of the *Valerian* Family, dignify'd and enobled their Name with that of *Lactucinii*.

It is, indeed, of Nature more cold and moiſt than any of the reſt, yet leſs aſtringent, and ſo harmleſs, that it may ſafely be eaten raw in Fevers; for it allays Heat, bridles Choler, extinguiſhes Thirſt, excites Appetite, kindly nouriſhes; and above all, repreſſes Vapours, conciliates Sleep, mitigates Pain; beſides the Effect it has upon the Morals, *Temperance* and *Chaſtity*. *Galen* (whoſe beloved *Sallet* it was) from its *pinguid*, *ſubdulcid*, and agreeable Nature, ſays it breeds the moſt laudable Blood. No marvel then that they were by the Ancients called *Sana*, by way of Eminency, and ſo highly valu'd by the great || *Auguſtus*, that attributing his Recovery of a dangerous Sickneſs to them, 'tis reported, he erected a *Statue*, and built an *Altar* to this noble Plant. And that the moſt abſtemious and excellent Emperor * *Tacitus* (ſpending almoſt nothing at his frugal Table in other Dainties) was yet ſo great a Friend to *Lettuce*, that he was us'd to ſay of his Prodigality, *Somnum ſe mercari illa ſumptus effuſione*. How it was celebrated by *Galen* we have heard; how he us'd it he tells himſelf; namely, beginning with *Lettuce* in his younger Days, and concluding with it when he grew old, and

* Eubulus.

† In Lactuca occultatum à Venere Adonin cecinit *Callimachus*, quod Allegorice interpretatus *Athenæus* illuc referendum putat, quod in Venerem hebetiores fiant Lactucis vescentes assiduè.

|| Apud Sueton.

* Vopiſcus Tacit. *For the reſt both of the Kinds and Vertues of* Lettuce, *See* Plin. H. Nat. l. xix. c. 8. *and* xx. c. 7. Fernel. &c.

and that to his great Advantage. In a word, we meet with nothing among all our crude Materials and *Sallet* Store, ſo proper to mingle with any of the reſt, nor ſo wholſome to be eaten alone, or in Compoſition, moderately, and with the uſual *Oxolyum* of *Vinegar*, *Pepper*, and *Oyl*, &c. which laſt does not ſo perfectly agree with the *Alphange*, to which the Juice of *Orange*, or *Lemon*, and *Sugar*, is more deſirable: *Ariſtoxenus* is reported to have irrigated his *Lettuce*-Beds with an *Oinomelite*, or Mixture of *Wine* and *Honey*: And certainly 'tis not for nothing that our Garden-Lovers, and *Brothers of the Sallet*, have been ſo exceedingly induſtrious to cultivate this noble Plant, and multiply its *Species*; for to name a few in preſent uſe: We have the *Alphange* of *Montpelier*, criſp and delicate; the *Arabic*, *Ambervelleres*, *Belgrade Cabbage*, *Capuchin*, *Coſs-Lettuce* from *Turkey*, *Curl'd*; the *Genoa*, (laſting all the Winter) the *Imperial*, and *Lobbs* or *Lop-Lettuces*. The *French Minion*, a dwarf kind: The *Oak-Leaf*, *Paſſion*, *Roman*, *Shell*, and *Sileſian*, hard and crimp (eſteemed of the beſt and rareſt) with divers more. And here let it be noted, that beſides three or four ſorts of this Plant, and ſome few of the reſt, there was within our remembrance, rarely any other *Salleting* ſerv'd up to the beſt Tables; with unblanch'd *Endive*, *Succory*, *Purſelan*, (and indeed, little other variety) *Sugar* and *Vinegar* being the conſtant *Vehicles* (without *Oyl*;) but now *Sugar* is almoſt wholly baniſh'd from all, except the more effeminate Palates, as too much palling, and taking from the grateful *Acid* now in uſe, tho' otherwiſe not totally to be reproved: *Lettuce* boil'd and *condited* is ſometimes ſpoken of.

39. Limon *or* Lemmons, *Limonia*, *Citrea mala*, exceedingly refreſhing, *Cordial*, &c. The Pulp being blended with the Juice, ſecluding the over-ſweet or bitter. See *Orange*.

40. Mallow, *Malva*; *Malva Criſpa*, *French* curl'd *Mauves*, the moſt preferable, is emollient, and friendly to the *Ventricle*, and ſo rather Medicinal; yet may the Tops, well boil'd, be admitted, and the reſt (tho' out of uſe at preſent) was taken by the Poets for all *Sallets* in general. *Pythagoras* held *Malvæ folium Sanctiſſimum*; and we find *Epimenides* in * *Plato* at his *Mallows* and *Aſphodel*; and indeed, it was of Old the firſt Diſh at Table: The *Romans* had it alſo *in deliciis*, * *Malvæ ſalubres corpori*, approved by † *Galen* and || *Dioſcorides*; namely, the *Garden-Mallow*, by others the *Wild*; but, I think, both proper rather for the *Pot* than *Sallet*. *Nonius* ſuppoſes the tall *Roſea*, *Arboreſcent Holi-hocks*, that bears the broad Flower, for the beſt, and very ¶ *laxative*; but by reaſon of their Clammineſs and *Lentor*, baniſhed from our Sallet, tho' by ſome commended and eaten with *Oyl* and *Vinegar*, and ſome with *Butter*.

* De Legib.

* *Hor.* Epod. 11.

† De Simp. Medic. L.vii.

|| *Lib.*ii.*cap.*3.

The *French* in their early Spring Sallets, add the young Tops and tender Leaves of the *Marſh-mallow*, which they call *Guimave*, for a moſt admirable *Nephritick*, as is alſo the *Syrupus Althæus*.

Mercury, See *Blite*.

¶ Exoneraturas Ventrem mihi Villica Malvas
Attulit, & varias, quas habet hortus, Opes. MART. *Lib.* x.

And our ſweet Poet.

—— Nulla eſt humanior herba,
Nulla magis ſuavi commoditate bona eſt,
Omnia tam placide regerat, blandeque relaxat,
Emollitque vias, nec ſinit eſſe rudes. COWL. *Plan.* L. 4.

41. Melon,

41. Melon, *Melo*; to have been reckon'd rather among *Fruits*; and tho' an uſual Ingredient in our *Sallet*, yet for its tranſcendent Delicacy and Flavour, cooling and exhilarating Nature, (if ſweet, dry, weighty, and well-fed) not only ſuperior to all the *Gourd*-kind, but Paragon with the nobleſt Productions of the Garden. *Joſ. Scaliger*, and *Caſaubon*, think our *Melon* unknown to the Ancients, (which others contradict) as yet under the Name of *Cucumbers*: But he who reads how artificially they were cultivated, rais'd under Glaſſes, and expos'd to the hot Sun (for *Tiberius*), cannot well doubt of their being the ſame with ours.

There is alſo a *Winter*, or *Water-Melon*, large, and with black, and ſome yellowiſh Seeds, exceedingly cooling, brought us from abroad, and the hotter Climates, where they drink *Water* after eating *Melons*; but in the colder (after all Diſpute) *Wine* is judg'd the better: That it has, indeed, by ſome, been accus'd, as apt to corrupt in the Stomach; and upon this Account, think both this *Cucumber* and *Lettice* apt, by their *Mucilage*, to hinder and intangle the *Animal Spirits*, (as may all Things elſe eaten in Exceſs) is not deny'd: But a perfect good *Melon* is certainly as harmleſs a Fruit as any whatſoever; and may ſafely be mingled with Sallet, in Pulp or Slices, or more properly eaten by it ſelf, with a little *Salt* and *Pepper*; for a *Melon* which requires *Sugar* to commend it, wants of Perfection.

Note, That this Fruit was very rarely cultivated in *England*, ſo as to bring it to Maturity, till Sir *George Gardner* came out of *Spain*. I my ſelf remembring, when an ordinary *Melon* would have been ſold for five or ſix Shillings. The ſmall unripe Fruit, when the others are paſt, may be pickled like *Mango*, and are very delicate.

42. Mint, *Mentha*; the *Anguſtifolia Spicata*, Spear-Mint; dry and warm, very fragrant a little preſs'd, is friendly to the weak Stomach, and powerful againſt all *nervous* Crudities: The gentler Tops of the *Orange-Mint*, enter well into our Compoſition, or are grateful alone (as are alſo the other Sorts) with the Juice of *Orange*, and a little *Sugar*. The *French* chiefly eſteem the *Mentha Sativa Criſpa* or Curled Mint, (which they call *Baume*) and mix it with their Sallets.

43. Muſhroms, *Fungi Eſculenti:* By the * Orator call'd *Terræ*; by *Porphyry*, *Deorum filii*, without Seed (as produc'd by the Midwifry of *Autumnal* Thunder-Storms, portending the Miſchief they cauſe) by the *French*, *Champignons*, with all the Species of the *Boletus*, &c. for being, as ſome hold, neither *Root*, *Herb*, *Flower*, nor *Fruit*, nor to be eaten crude; ſhould be therefore baniſh'd entry into our Sallet, were I to order the Compoſition; however ſo highly contended for by many, as the very principal and top of all the reſt; whilſt I think them tolerable only (at leaſt in this Climate) if being freſh and skilfully choſen, they are accommodated with the niceſt Care and Circumſpection; generally reported to have ſomething malignant and noxious in them: Nor without Cauſe; from the many ſad Examples, frequent Miſchiefs, and funeſt Accidents they have produc'd, not only to particular Perſons, but whole Families: Exalted, indeed, they were to the ſecond Courſe of the *Cæſarian Tables*, with the noble Title Βρῶμα Θεῶν, a Dainty fit for the *Gods* alone; to whom they ſent the Emperor † *Claudius*, as they have many ſince, to the other World. But he that reads how *Seneca* || deplores his loſt Friend, that

* Cic. *ad Attic.*

† Sueton. *in Claud.*

|| Sen. Ep. lxiii.

that brave Commander *Annæus Serenus*, and ſeveral other gallant Perſons with him, who all of them periſhed at the ſame Repaſt, would be apt to ask with the * *Naturaliſt* (ſpeaking of this ſuſpicious Dainty) *Quæ voluptas tanta ancipitis cibi?* And who, indeed, would hazard it? So true is that of the Poet, he that eats *Muſhroms*, many times *Nil amplius edit*, eats no more perhaps all his Life after. What other deterring *Epithets* are given for our Caution, Βάρη πνιγόεντα μυκήτων, *heavy* and *choaking*, (*Athenæus* reporting of the Poet *Euripides*'s finding a Woman and her three Children ſtrangled by eating of them) one would think ſufficient Warning.

* Plin. N. H. l. xxii. c. 23.

Among theſe comes in the *Fungus Reticularis*, (*Poroſus*, or *Honey-Comb*, the *French*) to be found about *London*, as at *Fulham* and other Places; whilſt at no ſmall Charge we ſend for them into *France*; as we do alſo for *Truffles*, *Pignuts*, and other ſubterraneous *Tubera Terræ*, which in *Italy* they fry in Oil, and eat with *Pepper*: They are commonly diſcovered, ſcented and rooted out (how deep in the Ground ſoever) by a *naſute greedy Swine*, purpoſely brought up; being of a Cheſs-nut Colour, and heady, rank, and Hercline Smell, and not ſeldom found in *England*, particularly in a Park of my Lord *Cotton*'s, at *Ruſhton* or *Rusbery* in *Northamptonſhire*, in the Wilderneſs adjoining to the Viſcount *Cullen*'s Garden there; and doubtleſs in other Places too, were they ſought after: By many believ'd to have originally been brought thither out of *France*, when by a very ſurprizing Accident, they were firſt diſcover'd by the almoſt incredible Voracity of *Swine*, allur'd by the Scent of the *Truffles* of the adjacent Fields, and could ſcarce be kept off with the *Spades* and *Dogs* of the Labourers, who, in order to plant the *Wilderneſs*, were digging up a piece of Ground, in which ſome Trees ſent out of *France* had been planted, with the *Caſe*-Earth adhering to the Roots, flung into the Holes. If this be the Origin of the *Ruſhton* Truffles, 'twill confirm the Opinion of Truffles being no Natives of *England*, unleſs ſprung here from thoſe brought from Foreign Parts. In the mean while, one brought from Abroad, is, with its ſmall *fibrous Roots*, delineated in the *Philoſ. Tranſact.* (N°. 202.); which doth fully demonſtrate the Error of the Ancients and Moderns, who aſſert, that they have no Root; when probably they were rubb'd off when they were Dug out of the Ground, and being ſo very ſmall, not heedfully minded or perceived. How theſe rank and provocative Excreſcences are to be † treated (of themſelves inſipid enough, and only famous for their kindly taking any Pickle or *Conditure*) that they may do the leſs Miſchief, we might here ſet down. But ſince there be ſo many ways of dreſſing them, that I can encourage none to uſe them, for Reaſons given (beſides that they do not at all concern our ſafer and innocent *Sallet* Furniture) I forbear it; and refer thoſe who long after this beloved *Ragout*, and other *Voluptuaria Venena* (as *Seneca* calls them) to what our learned Dr. *Lyſter* || ſays of the many venomous *Inſects* harbouring and corrupting in a new found-out Species of *Muſhroms* had lately *in deliciis*. Thoſe, in the mean time, which are eſteemed beſt, and leſs pernicious, (of which ſee the *Appendix*) are ſuch as riſe in rich, airy, and dry * Paſture-Grounds, growing on the Staff or *Pedicule* of about an Inch thick and high; moderately ſwelling (*Target*-like) round and firm, being underneath of a pale fleſh-colour'd Hue, curiouſly radiated in parallel Lines and Edges, which becoming either yel-

† Apitius, *lib.* vii. *cap.* 13.

|| Philoſ. Tranſact. *Num.* 89. 202. *Journey to* Paris.

* Pratenſibus optima fungis Natura eſt aliis male creditur, *Hor. Sat. l.* 7. *Sat.* 4.

low,

low, orange, or black, are to be rejected: But beſides what the Harveſt-Months produce, they are likewiſe rais'd * artificially; as at *Naples* in their Wine-Cellars, upon an heap of rank Earth, heaped upon a certain ſuppoſed *Stone*, but in truth, (as the curious and noble † *Peiresky* tells us, he found to be) nothing but an heap of old *Fungus*'s, reduc'd and compacted to a ſtony Hardneſs, upon which they lay Earth, and ſprinkle it with warm Water, in which *Muſhroms* have been ſteeped. And in *France*, by making an hot Bed of *Aſſes* or *Horſes* Dung, and when the Heat is in Temper, watering it (as above) well impregnated with the Parings and Offals of refuſe *Fungus*'s; and ſuch a Bed will laſt two or three Years; and ſometimes our common *Melon*-Beds afford them; beſides other Experiments: Among which is the Cuttings of the *White-Poplar* or *Abele*, almoſt to the very *Root*, plentifully ſoaked with hot Water *fermented* with Yeſt; which produces thoſe *Fungi* in a few Days very eatable and agreeable. Others affirm the ſame of the looſe Chips of the ſame Tree, being bury'd in a rich dung'd Bed.

* Bacon *Nat. Hiſt.* 12. Cent. vii. 547, 548. &c.

† Gaſſend. *Vita Peireſ.* l. iv. Raderus *Mart.* l. Epig. xlvi. In ponticum, *ſays, within four Days.*

44. Muſtard, *Sinapi*; exceeding hot and *mordicant*, not only in the Seed but Leaf alſo; eſpecially in *Seedling* young Plants, like thoſe of *Radiſhes* (newly peeping out of the Bed) is of incomparable effect to quicken and revive the Spirits; ſtrengthening the Memory, expelling Heavineſs, preventing the Vertiginous Palſey, and is a laudable *Cephalick:* Beſides, it is an approv'd *Antiſcorbutick*; aids Concoction, cuts and diſſipates Phlegmatick Humours. In ſhort, 'tis the moſt noble *Embamma*, and ſo neceſſary an Ingredient to all cold and raw *Salleting*, that it is very rarely, if at all, to be left out. In *Italy*, in making *Muſtard*, they mingle *Limon* and *Orange*-Peel with the Seeds. How the beſt is made, ſee hereafter.

Naſturtium Indicum, See *Creſſes*.

45. Nettles, *Urtica*; hot, dry, *Diuretic*, *Solvent*; purifies the Blood: The Buds, and very tender *Cymæ*, a little bruis'd, are by ſome eaten raw, by others boil'd, eſpecially in *Spring-Pottage*, with other Herbs.

46. Onion, *Cepa Vulgaris*, *Porrum:* The beſt are ſuch as are brought us out of *Ægypt* or *Spain*, whence they of St. *Omers* had them, and ſome that have weighed eight Pounds. Chuſe therefore the large, round, white, and thin skin'd. Being eaten crude and alone with *Oyl*, *Vinegar*, and *Pepper*, we own them in *Sallet* not ſo hot as *Garlick*, nor at all ſo rank: Boil'd, they give a kindly Reliſh; raiſe Appetite, corroborate the Stomach, cut Phlegm, and profit the *Aſthmatical:* But eaten in Exceſs, are ſaid to offend the Head and Eyes, unleſs *edulcorated* with a gentle Maceration. In the mean Time, as to their being noxious to the Sight, is imputable only to the Vapour riſing from the raw Onion, when peel'd, which ſome commend for its purging and quickning that Senſe. How they are us'd in Pottage, boil'd in Milk, ſtrew'd, *&c.* concerns the Kitchen. In our cold *Sallet* we ſupply them with the *Porrum Sectivum*, Tops of *Leeks*, and *Eſchalots* (*Aſcalonica*) of Guſt more exalted, yet not to the degree of *Garlick*. Or (by what of later Uſe is much preferr'd) with a *Bulb* or two of *Raccombole*, of a yet milder and delicate Nature, which by rubbing the Diſh only, imparts its Virtue agreeably enough. In *Italy* they frequently make a *Sallet* of *Schalions*, *Cives*, and *Cibbols*, only ſeaſon'd with *Oil* and *Pepper*; and an honeſt

laborious Countryman, with good *Bread*, *Salt*, and a little *Parſley*, will make a contented Meal with a roaſted *Onion*. How this noble *Bulb* was deify'd in * *Egypt* we are told, and that whilſt they were building the Pyramids, there was ſpent in this Root † nine Tun of of *Gold* among the Workmen. So luſcious and tempting it ſeems they were, that as whole Nations have ſubſiſted on them alone, ſo the *Iſraelites* were ready to return to *Slavery* and *Brick-making* for the Love of them. Indeed *Hecamedes* we find preſents them to *Patroclus* in *Homer*, as a *Regalo:* But certainly we are either miſtaken in the Species, (which ſome will have to be *Melons*) or uſe *Poetick* Licenſe, when we ſo highly magnify them. This Mention of the *Iſraelites* Fondneſs of them, calls to mind what that noble (but unfortunate) Earl of *Sandwich* told me, That being with the Fleet in the *Mediterranean*, near the Coaſt of *Egypt*, he had brought him *Onions* little inferior in Taſte to *Melons*.

* O Sanctas gentes, quibus hæc naſcuntur in hortis. Numina— *Juv. Sat.* 15.

† Herodotus.

47. Scalions *or* Cibbols, *Cipolini*, (as the *French* and *Italians* call them) are degenerate *Onions*, participating with them in their Qualities.

48. Cives, *Porrum ſectivum junci folium*; or as the *French*, *Cives d'Angleterre & Appelites*; which they (as alſo do the *Scalions*) notably ſtir up and quicken.

49. Eſchalots or Schalots, *Cepa Aſcalonica*; correct Crudities, and promote Concoction. The *Italians* ſteep them in Wine, and eat them cold with *Oyl*, *Vinegar* and *Salt*. The Learned *Stephanus Morinus*, in his Notes on *Steph. Byzantinus*, (annex'd to thoſe of the famous * *Bochart*) tells us, That none, ſave the Dregs of the People, among the *Grecians*, us'd to eat *Garlick* or *Onions*, but the *Idumæans*, and their Neighbours, eſteem'd them as their moſt delicious Fare, eſpecially a ſort they had from *Aſcalon*; whence it derives its Name.

* Bocharti opera, *Edit. Lugd. Bat.* 1692. *Fol.*

In ſhort *Onions*, *Scalions*, *Cives*, *Eſcalots*, &c. are all of the ſame Family, *Graveolentes*, ſtrong-ſcented *Bulbs*, with ſolid flat Leaves. See *Garlick*, to which they are cognate.

50. Orach, *Artiplex:* Is cooling, allays the *Pituit* Humour: Being ſet over the Fire, neither *this* nor *Lettuce* needs any other Water than their own Moiſture to boil them in without Expreſſion. The tender Leaves are mingl'd with other cold Salleting; but 'tis better in Pottage. There are ſome of white, red, or purple; the beſt Seed comes from *Turkey*. See *Blitum*.

51. There is another *Atriplex Maritima Fruticoſa*, call'd *Shrub Halimus*, or *Sea Orach*, whoſe new peeping Leaves (tho' rarely us'd) afford a no unpleaſant *Acidulæ*, even during Winter, if it prove not too ſevere.

52. Orange, *Malus Aurantia*, (*Malum aureum*) moderately dry, cooling, and inciſive; ſharpens Appetite, exceedingly refreſhes, and reſiſts Putrefaction: We ſpeak of the Sub-acid; the ſweet and bitter *Orange* being of no uſe in our Sallet. The *Limon* is ſomewhat more acute, cooling and extinguiſhing Thirſt: Of all the Ὀξύβαφα, the beſt *Succedaneum* to *Vinegar*. The very Spoils and Rinds of *Orange* and *Limon* being ſhred and ſprinkl'd among the other Herbs, correct the Acrimony. But they are the tender Seedlings from the Hot-Bed, which impart an *Aromatic* exceedingly grateful to the Stomach. *Vide* Limon.

53. Parſe-

53. Parſnep, *Paſtinaca, Latifolia Sativa*; firſt boil'd, being cold, is of itſelf a Winter-Sallet, eaten with *Oyl, Vinegar*, &c. and having ſomething of Spicy, is by ſome thought more nouriſhing than the *Turnip*.

54. There is alſo the *Water-Parſnip, Sium Majus Latifolium:* The crude tender Leaves, early in the Spring, are eaten in *Spain*; are very grateful for the Stomach, and a ſovereign Remedy againſt the *Gravel* in the *Kidney*, or *Stone* in the *Bladder:* But operates much more efficaciouſly, if a good Handful of the whole *Plant* (whilſt moſt flouriſhing) be boil'd in a Pint of *White-Wine* Poſſet-drink, and the percolated Liquor drank warm. In the Winter-time, and when the Plant is in Decay, if a large Spoonful of the Powder of the Leaves (gather'd and dry'd in the Summer) be taken in *Poſſet-drink*.

55. Patience, *Lapathum Hortenſe Sativum*, (to which may be join'd the *Sanguineum* or *Blood-wort*) being boil'd, is a palatable and wholſome *Eſculent*, *laxative* and *emollient:* All the *Lapatha's* and *Docks* have, in ſome degree, the Faculties of *Rhubarb*, being of the ſame Family. *Vide* the *Sharp-pointed Dock*.

56. Peaſe, *Piſum*: The *Pod* of the *Sugar-Peaſe*, when firſt beginning to appear, with the *Husk* and *Tendrels*, affording a pretty *Acid*, enters into the Compoſition, as do thoſe of *Hops* and the *Vine*.

57. Pepper, *Piper*; hot and dry in a high degree; of approv'd Virtue againſt all Flatulency proceeding from cold and phlegmatic Conſtitutions, and generally all Crudities whatſoever; and therefore for being of univerſal Uſe to correct and temper the cooler Herbs, and ſuch as abound in Moiſture, it is a never-to-be-omitted Ingredient of our *Sallets*, provided it be not too minutely beaten (as oft we find it) to an almoſt impalpable Duſt; which is very pernicious, and frequently adheres and ſticks in the Folds of the Stomach, where, inſtead of promoting Concoction, it often cauſes a *Cardialgium*, and fires the Blood: It ſhould therefore be groſly contus'd only.

Indian, or *Solanum Capſicum*, ſuperlatively hot and burning, is yet by the *Africans*, as alſo the Southern *Americans*, eaten with Salt and Vinegar by itſelf, as an uſual Condiment; but would be of dangerous Conſequence with us, being ſo much more of an acrimonious and terribly biting Quality; which by Art and Mixture is notwithſtanding render'd not only ſafe, but very agreeable in our *Sallet*.

Take the *Pods*, and dry them well in a Pan; and when they are become ſufficiently hard, cut them into ſmall Pieces, and ſtamp 'em in a Mortar to Duſt: To each Ounce of which add a Pound of Wheat-flour, fermented with a little Leven: Knead and make them into Cakes or Loaves cut long-wiſe in ſhape of *Naples* Biſcuit. Theſe rebake a ſecond time, till they are Stone-hard: Pound them again as before, and ſerce it thro' a fine Sieve, for a very proper Seaſoning, inſtead of vulgar *Pepper*. The Mordicancy thus allay'd, be ſure to make the Mortar very clean, after having beaten *Indian Capſicum*, before you ſtamp any thing in it elſe. The green Husks, or firſt peeping Buds of the Walnut-tree, dry'd to Powder, ſerve for *Pepper* in ſome Places, and ſo do *Myrtle-berries*; which *Pliny* tells us, the Antients made uſe of inſtead of *Pepper*, before they knew the Virtue and Uſe of that Grain.

That great *Botaniſt*, the Learned and Excellent Dr. *Sloane*, (not to be mention'd by me without ſingular Reſpect) in his moſt admirable

and uſeful *Catalogue* of *Jamaica Plants*, has diſcovered to us, that the *Tree* which bears the famous *Spice* call'd *ſweet-ſcented Jamaica Pepper* (or *All-Spice*) is a Species of *Myrtle*, by him call'd *Myrtus Arborea aromatica foliis Laurinis:* The accurate Deſcription of which, expect from this Learned Doctor, when (his buſy Profeſſion allowing Leiſure) he ſhall have oblig'd the curious World with a finiſh'd Impreſſion of that incomparable Piece, The *Natural Hiſtory* of *Jamaica*, and the other *Caribbee Iſlands*, with an Account of his Voyage.

58. Parſley, *Apium Hortenſe, Petroſelinum vulgare:* The curl'd leav'd, *Apium Criſpum*, moſt preferable, being hot and dry, opens Obſtructions, is very *Diuretic*, yet nouriſhing, *edulcorated* in ſhifted warm Water, (the Roots eſpecially) but of leſs Vertue than *Alexanders*; nor ſo convenient in our crude *Sallet*, as when decocted on a Medicinal Account. Some few Tops of the tender Leaves may yet be admitted; tho' it was of old, we read, never brought to the Table at all, as ſacred to *Oblivium* and the *Defunct*. In the mean time, there being nothing more proper for Stuffing, (*Farces*) and other *Sauces*, we conſign it to the *Olitories*. Note, That *Parſley* is not ſo hurtful to the Eyes as is reported.

59. Purſlain, *Portulaca Hortenſis*; eſpecially the *Golden*, whilſt tender, the Seed-leaves, with the young Stalks, being eminently moiſt and cooling, quickens Appetite, aſſwages Thirſt, and is very profitable for hot and *Bilious* Tempers, as well as *Sanguine*, and generally entertain'd in all our *Sallets*, mingled with the hotter Herbs: 'Tis likewiſe familiarly eaten alone with *Oyl* and *Vinegar*; but with Moderation, as having been ſometimes found to corrupt in the Stomach, which being *Pickl'd* 'tis not ſo apt to do. Some eat it cold, after it has been boil'd, which Dr. *Muffet* would have in *Wine*, for Nouriſhment.

Purſlain is accus'd for being hurtful to the *Teeth*, if too much eaten. See *Purſlan* V. *Orach.*

60. Radiſh, *Raphanus*, *Raves*: Albeit rather Medicinal, than ſo commendably accompanying our *Sallets* (wherein they often ſlice the larger Roots) are much inferior to the young Seedling Leaves and Roots; raiſed on the * Monthly *Hot-Bed*, almoſt the whole Year round, affording a very grateful Mordacity, and ſufficiently attempers the cooler Ingredients: The bigger Roots (ſo much deſir'd) ſhould be ſuch as being tranſparent, eat ſhort and quick, without ſtringineſs, and not too biting. Theſe are eaten alone, with *Salt* only, as carrying their *Pepper* in them; and were, indeed, by *Dioſcorides* and *Pliny* celebrated above all Roots whatſoever; inſomuch as in the *Delphic* Temple, there was *Raphanus ex auro dicatus*, a Radiſh of ſolid Gold; and 'tis ſaid of *Moſchius*, that he wrote a whole Volume in their Praiſe. Notwithſtanding all which, I am ſure, the great † *Hippocrates* utterly condemns them, as *Vitioſæ*, *innatantes ac ægre concoctiles*. And the *Naturaliſt* calls it *Cibus Illiberalis*, fitter for *Ruſtics* than *Gentlemens* Tables. And indeed, (beſides that they decay the Teeth) Experience tells us, that as the Prince of *Phyſicians* writes, It is hard of Digeſtion, *inimicous* to the Stomach, cauſing nauſeous Eructations, and ſometimes Vomiting, tho' otherwiſe *diuretic*, and thought to repel the Vapours of *Wine*, when the *Wits* were at their genial *Club*. *Dioſcorides* and † *Galen* differ about their Eating; One preſcribes it before Meals, the latter for after. Some macerate the young Roots in warm Milk, to render them more *nouriſhing*.

* ῥαφὶς τὸ ῥαδίως φαίνεσθαι, quia tertio à ſatu die appareat.

† De diæta lib. ii. cap. 25.

† De Aliment Facult. lib. ii.

There is a *Raphanus ruſticanus niger Pyriformis*, the *Spaniſh* black *Horſe-Radiſh*, of a hotter Quality, and not ſo friendly to the Head; but a notable *Antiſcorbutic*, which (being preſerv'd in Seed) may be eaten all the Winter, and on that account an excellent Ingredient in the Compoſition of *Muſtard*; as are alſo the thin Shavings, mingled with our cold Herbs. And now before I have done with this Root, for an excellent and univerſal *Condiment*, take *Horſe-Radiſh*, (which is the *Sylveſtris Ruſticanus*) whilſt newly drawn out of the Earth, otherwiſe laid to ſteep in Water a competent time; then *grate* it on a *Grater* which has no bottom, that ſo it may paſs thro' like a Mucilage, into a Diſh of Earthen Ware: This temper'd with *Vinegar* in which a little *Sugar* has been diſſolv'd, you have a *Sauce* ſupplying *Muſtard* to the *Sallet*, and ſerving likewiſe for any Diſh beſides.

61. Rampion, *Rapunculus*, or the *Eſculent Campanula*, by the *French*, *Reponces*: The tender Roots are eaten in the Spring, like thoſe of *Radiſhes*, but much more nouriſhing.

62. Rocket, *Eruca Sativa*; hot and dry, is to be qualify'd with *Lettuce*, *Purcelain*, and the reſt, *&c.* See *Tarragon*.

Roccombole, See *Garlick*.

63. Roſemary, *Roſmarinus*; Sovereignly *Cephalick*, and for the *Memory*, *Sight*, and *Nerves*, incomparable: And tho' not us'd in the Leaf with our *Sallet* Furniture, yet the *Flowers* a little bitter, are always welcome in *Vinegar*; but above all, a freſh Sprig or to in a Glaſs of *Sherry-Sack*. See *Flowers*.

64. Sage, *Salvia*; hot and dry. The Tops of the *Red*, well pick'd and waſh'd (being often defil'd with a venomous Slime, and almoſt imperceptible *Inſects*) with the *Flowers*, retain all the noble Properties of the other hot Plants; more eſpecially for the *Head*, *Memory*, *Eyes*, and all *Paralytical* Affections. In ſhort, 'tis a Plant endu'd with ſo many and wonderful Properties, as that the aſſiduous uſe of it is ſaid to render Men *Immortal*: We cannot therefore but allow the tender *Summities* of the young Leaves; but principally the *Flowers* in our cold *Sallet*; yet ſo as not to domineer: 'Tis credibly affirm'd, That the *Dutch* for ſome time drove a very lucrative Trade with the dry'd Leaves of what is call'd *Sage of Vertue*, and *Guernſey Sage*; where it is in great Eſteem, and was there firſt propagated from *Plants* brought out of *England:* Both the *Chineſes* and *Japaneſes* are great Admirers of that ſort of *Sage*, and ſo far prefer it to their own *Tea*, (eſteeming it much more wholſome, and perhaps they are in the right) that for what *Sage* they purchaſe of the *Dutch*, they give *triple* the quantity of the choiceſt *Tea* in exchange: Some Perſons here have a greater value for the *Wormwood Sage* than any of the reſt.

Salſifax, See *Goats-beard*.

65. Sampier, *Crithmum Marinum*; *French*, *Perce Pierre*, for its growing on the Sea-Cliffs, and in the Corners of the hardeſt Rocks (as about *Dover*, &c. from whence we have it) not only *pickl'd*, but crude and cold, when young and tender (and ſuch as we may cultivate, and have in our *Kitchen Gardens*, almoſt the Year round) and is in my Opinion, for its *Aromatic*, and other excellent Vertues and Effects againſt the *Spleen*, cleanſing the Paſſages, ſharpning Appetite, *&c.* ſo far preferable to moſt of our hotter Herbs, and *Sallet*-Ingredients, that I have long wonder'd, it has not been long ſince propagated in the *Potagere*, as it is in *France*; from whence I have often receiv'd the *Seeds*,

which have proſper'd better, and more kindly with me, than what comes from our own Coaſts: It does not indeed *pickle* ſo well, as being of a more tender Stalk and Leaf: But in all other reſpects for compoſing *Sallets*, it has nothing like it. If the Seeds be ſow'd in a gravelly Bank, expos'd to the South, or under that warm *Aſpect*, it will inſinuate it ſelf into the very Materials, and may be cut like other Sallet-Herbs, without detriment, and continue ſpringing with little Culture; yet in exceſſive Dearth, wet, or cold, afford it a little Shelter, and ſo it will laſt an Ever-green, and may be apply'd for Bordering.

Scalions, See *Onions*.

66. Scurvy-graſs, *Cochlearia major Rotundifolia*, of the Garden; but eſpecially that of the Sea, *Cochlearia folio ſinuato*, or *Britannica*, is ſharp, biting, and hot; of Nature like *Naſturtium*, prevalent in the *Scorbute*. A few of the tender Leaves may be admitted in our Compoſition. See *Naſturtium Indicum*.

67. Sellery, *Apium Mitius Italicum*, (and of the *Petroſeline* Family) was formerly a Stranger with us (nor very long ſince in *Italy* itſelf) as to the *Italian* Name: Nor is it a diſtinct *Species* of *Smallage*, or *Macedonian Parſly*, tho' ſomewhat more hot and generous by its frequent Tranſplanting, and thereby render'd ſweeter ſcented. We have the beſt Seeds from *Italy*, whoſe tender Leaves and *blanch'd* Stalk do well in our *Sallet*, as likewiſe the Slices of the whiten'd Stems, which being crimp and ſhort, firſt peel'd and ſlit long-wiſe, are eaten with *Oyl*, *Vinegar*, *Salt*, and *Pepper*; and for its high and grateful Taſte, is ever plac'd in the middle of the *Grand Sallet*, at our Great Men's Tables, and *Prætors* Feaſts, as the Grace of the whole Board. *Caution* is to be given of a ſmall red *Worm*, often lurking in theſe Stalks, as does the green in *Fennil*.

Shallots. See *Onion*.

68. Skirrets, *Siſarum Sativum*, or *Germanorum*, B. P. French *Chervi*; is hot and moiſt, corroborating, and good for the Stomach, exceedingly nouriſhing, wholſome and delicate; of all the *Root-kind*, not ſubject to be windy, and ſo valued by the Emperor *Tiberius*, that he accepted them for Tribute.

This excellent Root is ſeldom eaten raw; but being boil'd, ſtew'd, roaſted under the Embers, bak'd in Pies, whole, ſlic'd, or in Pulp, is very acceptable to all Palates. 'Tis reported, they were heretofore ſomething bitter: See what Culture and Education effects.

Smallage, See *Sellery*.

69. Sorrel, *Acetoſa*, or *Oxalis*, of which there are divers kinds: The *broad German*, *Acetoſa maxima Germanica*; the *Roman* or *French Acetocella*, with the *Round Leaf*; *Oxalis Franca*, or *Romana*, with the *repent Rounder Leaf*, found by that accompliſh'd *Botaniſt*, the late * Mr. *Ray*, growing in *Cumberland*, (as likewiſe in *Wales*:) The barren *Sorrel* of *Ruſſia*, deſervedly eſteem'd by many: But after all, the beſt is that of *Greenland*. *Sorrel* is by Nature cold, abſterſive, acid, ſharpning the Appetite, aſſwages Heat, cools the Liver, ſtrengthens the Heart; is an *Antiſcorbutic*, reſiſting Putrefaction, and imparting ſo grateful a quickneſs to the reſt, as ſupplies the want of *Orange*, *Limon*, and other *Omphacia*; and therefore never to be excluded. *Vide* Wood-Sorrel.

* *Catalogue of* Engliſh *Plants* 2 Edit.

70. Sow-

70. Sowthiſtle, *Sonchus*; of the *Intybus*-kind. *Galen* was us'd to eat it as *Lettuce*; exceedingly welcome to the late *Morocco* Ambaſſador, and his Retinue.

71. Sparagus, *Aſparagus* (*ab Aſperitate*;) temperately hot and moiſt; *Cordial*, *Diuretic*, eaſy of Digeſtion; and next to Fleſh, nothing more nouriſhing, as *Sim. Sethius*, an excellent Phyſician, holds. They are ſometimes, but very ſeldom, eaten raw with *Oyl* and *Vinegar*; but with more Delicacy (the Bitterneſs firſt exhauſted) being ſo ſpeedily boil'd, as not to loſe the Verdure and agreeable Tenderneſs; which is done, by letting the Water boil before you put them in. We generally in *England* prejudice both *Sparagus*, *Coleworts*, (and moſt other *Herbaceous Eſculents*) by over-boiling them, whereby their *Volatile Salts* (in which much of their Virtue conſiſts) are evaporated. The *Romans* did with that Celerity boil their *Aſparagus*, that *Auguſtus*, when he order'd any Buſineſs to be expedited, his proverbial Saying was, Let it be diſpatch'd *Citius quam Aſparagi coquuntur*. I do not eſteem the *Dutch* great and larger Sort (eſpecially rais'd by the Rankneſs of the Beds) ſo ſweet and agreeable as thoſe of a moderate Size. And yet to ſhew what *Solum*, *Cœlum*, and Induſtry will effect, the honourable and learned *Charles Hatton*, Eſq; (to whom all our *Phytologiſts*, and Lovers of *Horticulture*, are oblig'd, and myſelf in particular for many Favours) made my Wife a preſent of ſixteen *Sparagus*, the whole Bunch containing only ſixty, which weighed fifteen Pounds and a quarter; ſo as allowing four Ounces to each *Sparagus*, one was as many as one would deſire to eat: And that which is yet as obſervable, is, their not being rais'd and forc'd by extraordinary Compoſt, (as they generally are) but in a more natural, ſweet, rich, and well cultivated Soil about *Batterſea*.

72. Spinach, *Spinachia*, *Lapathum Hortenſe*; of old not us'd in *Sallets*, and the oftner kept out the better: I ſpeak of the *crude*; but being boil'd to a *Pulp*, and without other Water than its own Moiſture, is a moſt excellent Condiment with Butter, Vinegar, or Limon, for almoſt all ſorts of boil'd Fleſh; and may accompany a ſick Man's Diet. 'Tis *Laxative* and *Emollient*, and therefore profitable for the Aged, and tho' by Original a *Spaniard*, may be had at almoſt any Seaſon, and in all Places.

73. Stone-Crop, *Vermicularis Inſipida*, (by the *French*, *Tripe Madame*;) is cooling and moiſt, grateful to the Stomach. The *Turiones* or Tops being young and tender, dreſs'd like *Purſlain*, is a frequent Ingredient in our cold Sallets.

But there is another *Stone-Crop* of as pernicious Qualities as thoſe of the former are laudable; *Wall-Pepper* or *Stone-Crop*, *Sedum minus Cauſticum*; by the *French*, *Tricque Madame*: If therefore the Sallet-Compoſer be not *Botaniſt* ſufficiently skilful, upon his own View, to diſtinguiſh the *Wall-Pepper Stone-Crop*, which is hot and fiery, from that which is inſipid, it were adviſeable for him, before he puts either of them into the *Sallet*, to conſult his Palate, and taſte them firſt.

74. Succory, *Cichorium Sylveſtre*, an *Endive*; erratic or wild, with a narrow dark Leaf, different from the *Sative*, tho' probably by Culture only; and for being very bitter, a little *edulcorated* with Sugar and Vinegar, is by ſome eaten in the Summer, but more grateful to the Stomach than the Palate. See *Endive*.

75. Tanſy,

75. Tanſy, *Tanacetum*; hot and cleanſing; but in regard of its domineering Reliſh, ſparingly mix'd with our cold *Sallet*, and much fitter (tho' in very ſmall Quantity) for the Pan, being qualify'd with the Juices of other freſh Herbs, *Spinach*, *green Corn*, *Violet*, *Primroſe-Leaves*, &c. at Entrance of the Spring, and then fry'd browniſh, is eaten hot, with the Juice of *Orange* and *Sugar*, as one of the moſt agreeable of all the boil'd *Herbaceous* Diſhes. Of this Herb ſome prefer the Curl'd.

76. Tarragon, *Draco Herba*, *Dracunculus Hortenſis*; of *Spaniſh* Extraction; hot and ſpicy: The Tops and young Shoots, like thoſe of *Rochet*, never to be ſecluded our Compoſition, eſpecially where there is much *Lettuce*. 'Tis highly cordial, and friendly to the Head, Heart, Liver, correcting the Weakneſs of the Ventricle, &c.

77. Thiſtle, *Carduus Mariæ*; our Lady's milky or dappl'd *Thiſtle*, diſarm'd of its Prickles, and boil'd, is worth Eſteem, and thought to be great Breeders of *Milk*, and proper Diet for Women who are Nurſes. The young Stalk, about *May*, (and ſold in our Herb-Markets) being peel'd and ſoak'd in Water to extract the Bitterneſs, boil'd or raw, is a very wholſome *Sallet*, eaten with *Oyl*, *Salt*, and *Pepper*. Some eat them ſodden in proper Broth, or bak'd in Pies, like the *Artichoak*; but the tender Stalk boil'd or fry'd ſome prefer; both nouriſhing and reſtorative.

78. Thyme, *Thymus*; of which before (ſpeaking of *Pot-Herbs*, Num. 35.) The true *Thyme* of the Antients is the *Thymus Capitatus Crepitus*, or *Candy Tuft*; a Plant of a moſt agreeable *Odor*, and grateful *Sapor*; a conſiderable Quantity being frequently, by the *Hollanders*, brought from *Maltha*, and other Places in the *Streights*, who ſell it at home, and in *Flanders*, for Strewings amongſt their *Sallets* and *Ragout*; and call it *All-Sauce*.

Tricque-Madame, ſee *Stone-Crop*.

79. Turnip, *Rapum Vulgare*, *F. Raves*; moderately hot and moiſt. *Napus*: The long little *Navet* is certainly the moſt delicate of them, and beſt nouriſhing, ſo as the *French* put it into moſt of their *Pottages*. *Pliny* ſpeaks of no fewer than ſix Sorts, and of ſeveral Colours; ſome of which were ſuſpected to be artificially tinged. But with us, the Yellow, which comes from *Denmark*, is preferr'd; by others, the red *Bohemian*. But of whatever Kind, being ſown upon the *Hot-Bed*, and no bigger than ſeedling *Radiſh*, they do excellently in Compoſition; as do alſo the Stalks of the common *Turnip*, when firſt beginning to bud; and being boil'd, eat like *Sparagus*.

Here *note*, That this *Navet* is never to be ſown in a rich Soil, wherein they rather degenerate than improve, or at all meliorate; but loſing their Shape, dry and agreeable Reliſh, become indeed moiſt and large: And therefore their proper Mould is rather a lean, dry, ſandy Earth.

And here ſhould not be forgotten, that wholſome, as well as agreeable ſort of Bread we are * taught to make; and of which we have eaten at the greateſt Perſons Tables, hardly to be diſtinguiſh'd from the beſt of *Wheat*.

* *Phil. Tranſ.* Vol. XVII. Num. 205. Page 970.

Let the *Turnips* firſt be peel'd, and boil'd in Water till ſoft and tender; then ſtrongly preſſing out the Juice, mix them together, and when dry, (beaten or pounded very fine) with their Weight of Wheat-Meal, ſeaſon it as you do other Bread, and knead it up; then

letting the Dough remain a little to *ferment*, faſhion the Paſte into Loaves, and bake it like common Bread.

Some roaſt *Turnips* in a Paper under the Embers, and eat them with *Sugar* and *Butter*.

80. Vine, *Vitis*, the *Capreols*, *Tendrels*, and *Claſpers*, whilſt very young, have an agreeable *Acid*, which may be eaten alone, or with other *Sallet*.

81. Viper-graſs, *Viperaria*, *Scorzonera*, *Salſifix*, &c. though Medicinal and excellent againſt the *Palpitation of the Heart*, *Faintings*, *Obſtruction of the Bowels*, &c. are beſides a very ſweet and pleaſant *Sallet*; being laid to ſoak out the Bitterneſs, then peel'd, may be eaten raw, or *condited*; but beſt of all ſtew'd with *Marrow*, *Spice*, *Wine*, &c. as *Artichoak*, *Skirrets*, &c. ſliced or whole. They likewiſe may bake, fry, or boil them; a more excellent Root there is hardly growing.

82. Wood-Sorrel, *Trifolium Acetoſum*, or *Alleluja*; of the Nature of other *Sorrels*.

To all which might be added ſundry more, formerly had in *deliciis*, ſince grown *obſolete*, or quite neglected with us: As among the nobleſt *Bulbs*, that of the *Tulip*; a Root of which has been valued not to eat, but for the *Flower* (and yet eaten by Miſtake) at more than an hundred Pounds. The young freſh *Bulbs* are ſweet, and high of Taſte.

The *Aſphodil* or *Daffodil*; a *Sallet* ſo rare in *Heſiod*'s Days, that *Lobel* thinks it the *Parſnip*, though not at all like it; however it was (with the *Mallow*) taken anciently for any *Edule*-Root.

The *Ornithogalons* roaſted, as they do *Cheſnuts*, are eaten by the *Italians*, the wild yellow eſpecially, with *Oil*, *Vinegar*, and *Pepper*. And ſo the ſmall *tuberous* Roots of *Gramen-Amygdaloſum*, which they alſo roaſt, and make an *Emulſion* of, to uſe in Broaths as a great Reſtorative. The *Oxylapathum* us'd of Old, in the Time of *Galen* was eaten frequently: As alſo *Dracontium*, with the mordicant *Arum Theophraſti*, which *Dodonæus* teaches how to Dreſs: Nay, divers of the *Satyrions*, which ſome condited with *Sugar*, others boil'd in Milk, for a great Nouriſher, now diſcarded. But what think we of the *Cicuta*, which there are who reckon among *Sallet-Herbs*? But whatever it is in any other Country, 'tis certainly mortiferous in ours. To theſe add the *Viola Matronalis*, *Radix Lunaria*, &c. nay, the *Green Poppy*, by moſt accounted among the deadly Poiſons. How cautious then ought our *Sallet*-Gatherers to be, in reading ancient Authors; leſt they happen to be impos'd on, where they treat of Plants that are familiarly eaten in other Countries, and among other Nations and People of more robuſt and ſtrong Conſtitutions? Beſides the hazard of being miſtaken in the Names of divers *Simples*, not as yet fully agreed upon among the learned in *Botany*.

There are beſides ſeveral remaining, which, though *abdicated* here with us, find Entertainment ſtill in Foreign Countries. As the large *Heliotrope* and Sun-flower, (e'er it comes to expand, and ſhew its golden Face) which being dreſs'd as the *Artichoak*, is eaten for a Dainty. This I add as a new Diſcovery: I once made *Macaroons* with the ripe blanch'd Seeds, but the *Turpentine* did ſo domineer over all, that it did not anſwer Expectation. The *Radix Perſonata* mounting with their young Heads, *Liſimachia ſiliquoſa glabra minor*,

when freſh and tender, begins to come into the *Sallet*-Tribe. The pale whiter *Poppy* is eaten by the *Genoueſe*. By the *Spaniards*, the Tops of *Wormwood* with *Oil* alone, and without ſo much as *Bread*; profitable indeed to the Stomach, but offenſive to the Head: As is alſo *Coriander* and *Rue*, which *Galen* was accuſtom'd to eat raw, and by it ſelf with *Oil* and *Salt*, as exceedingly grateful, as well as wholſome, and of great Virtue againſt Infection. *Pliny*, I remember, reports it to be of ſuch Effect for the Preſervation of *Sight*, that the *Painters* of his Time us'd to devour a great Quantity of it. And it is ſtill by the *Italians* frequently mingled among their *Sallets*. The *Lapatha Perſonata* (common *Burdock*) comes now and then to the beſt Tables, about *April*, and when young, before the *Burrs* and *Clots* appear, being ſtripp'd, and the Bitterneſs ſoak'd out, treated as the *Chardoon*, is eaten in *Poiverade*; ſome alſo boil them. More might here be reckon'd up, but theſe may ſuffice; ſince, as we find, ſome are left off, and gone out, ſo others be introduc'd and come in their Room, and that in much greater Plenty and Variety, than was ever known by our Anceſtors. The *Cucumber* it ſelf, now ſo univerſally eaten, being accounted little better than *Poiſon*, even within our Memory, as already noted.

To conclude: And after all that has been ſaid of Plants and *Salleting*, formerly in great Eſteem, (but ſince obſolete and quite rejected:) What if the exalted Juice of the ancient *Silphium* ſhould come in, and challenge the Precedency? It is a [a] Plant formerly ſo highly priz'd, and rare for the Richneſs of its Taſte, and other Virtues, that as it was dedicated to *Apollo*, and hung up in his Temple at *Delphi*; ſo we read of one ſingle Root brought to the Emperor *Nero* for an extraordinary Preſent; and the Drug ſo eſteem'd, that the *Romans* had long before amaſs'd a Quantity of it, and kept it in the Treaſury till *Julius Cæſar* robb'd it, and took this away, as a Thing of mighty Value. In a word, it was of that Account, that as a Sacred Plant, thoſe of the *Cyrenaic Africa*, honour'd the very Figure of it, by ſtamping it on the Reverſe of their [b] Coin; and when they would commend a Thing for its Worth [c] the Skies, Βάττε σίλφιον grew into a Proverb. *Battus* having been the Founder of the City *Cyrene*, near which it only grew. 'Tis indeed conteſted among the learned *Botanoſophiſts*, whether this Plant was not the ſame with *Laſerpitium*, and the *Laſer* it yields, the odoriferous [c] *Benzoin?* But, doubtleſs, had we the true and genuine *Silphium* (for it appears to have been often ſophiſticated, and a ſpurious Sort brought into *Italy*) it would ſoon recover its priſtine Reputation, and that it was not celebrated ſo for nothing extraordinary; ſince, beſides its Medicinal Virtue, it was a wonderful Corroborator of the Stomach, a Reſtorer of loſt Appetite, and Maſculine Vigor, *&c.* and that they made Uſe of it almoſt in every Thing they eat.

But ſhould we now really tell the World, that this precious Juice is, by many, thought to be no other than the [d] *Fætid Aſſa*; our ni-

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[a] *Plin.* H. Nat. lib xix. cap. 3. & xx. c. 22. *See* Jo. Tzetzes Chil. vi. 48. & xvii. 119.

[b] Spanheim, De uſu & Præſtat. Numiſ. Diſſert. 4to. *It was ſometimes alſo the Reverſe of* Jupiter Hammon.

[c] ——— οὐδ' ἂν εἰ δοίης γέ μοι Τὸν πλεῖστον αὐτὸν καὶ τὸ Βάττε σίλφιον. *Ariſtoph.* in Pluto, Act. iv. Sc. 3.

[d] *Of which ſome would have it a courſer Sort*, inamœni odoris, *as the ſame Comedian names it in his* Equites, *p.* 239, *and* 240. Edit. Baſil. *See likewiſe this diſcuſs'd, together with its Properties, moſt copiouſly, in* Jo. Budæus *a* Stapul. *Comment. in* Theophraſt. lib. vi. cap. 1. *and* Bauhin. *Hiſt. Plant.* lib. xxvii. cap. 53.

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cer *Sallet-Eaters* (who yet beſtow as odious an Epithet on the vulgar *Garlick*) would cry out upon it as intolerable, and perhaps hardly believe it. But as *Ariſtophanes* has brought it in, and ſufficiently deſcrib'd it; ſo the *Scholiaſt* upon the Place, puts it out of Controverſy: And that they made Uſe both of the *Leaves*, *Stalk*, (and *Extract* eſpecially) as we now do *Garlick*, and other *Hautgouts* as nauſeous altogether. In the mean Time, *Garcius*, *Bontius*, and others, aſſure us, that the *Indians* at this Day, univerſally ſauce their Viands with it; and the *Bramins* (who eat no Fleſh at all) enrich their *Sallets*, by conſtantly rubbing the Diſhes with it. Nor are ſome of our own skilful *Cooks* ignorant how to *condite* and uſe it, with the Applauſe of thoſe, who, ignorant of the Secret, have admir'd the Richneſs of the Guſt it has imparted, when it has been ſubſtituted inſtead of all our *Cipolati*, and other Seaſonings of that Nature.

And thus have we done with the various *Species* of all ſuch *Eſculents* as may properly enter the Compoſition of our *Acetaria*, and cold *Sallet*. And if I have briefly touch'd upon their Natures, Degrees, and *primary Qualities*, which *intend* or *remit*, as to the Scale of *Heat*, *Coldneſs*, *Drineſs*, *Moiſture*, &c. (which is to be underſtood according to the different Texture of their *component Particles*) it has not been without what I thought neceſſary for the Inſtruction of the *Gatherer*, and *Sallet-Dreſſer*; how he ought to chuſe, ſort, and mingle his Materials and Ingredients together.

What Care and Circumſpection ſhould attend the Choice and Collection of *Sallet-Herbs*, has been partly ſhew'd. I can therefore, by no means, approve of that extravagant Fancy of ſome, who tell us, that a *Fool* is as fit to be the *Gatherer* of a *Sallet* as a *wiſer* Man: Becauſe, ſay they, one can hardly chuſe amiſs, provided the Plants be green, young, and tender, wherever they meet with them: But ſad Experience ſhews, how many fatal Miſtakes have been committed by thoſe who took the deadly *Cicutæ*, *Hemlocks*, *Aconits*, &c. for Garden *Parſley* and *Parſnips*; the *Myrrhis Sylveſtris*, or *Cow-weed*, for *Chærophilum*, (*Chervil*;) *Thapſia* for *Fennel*; the wild *Chondrilla* for *Succory*; *Dogs-Mercury* inſtead of *Spinach*: *Papaver Corniculatum Luteum*, and horn'd *Poppy*, for *Eringo*; *Oenanthe aquatica* for the *Paluſtral Apium*, and a world more, whoſe dire Effects have been many times ſudden Death, and the Cauſe of mortal Accidents to thoſe who have eaten of them unwittingly. But ſuppoſing ſome of thoſe wild and unknown Plants ſhould not prove ſo *deleterious* and * unwholſome, yet may others of them annoy the *Head*, *Brain*, and *Genus Nervoſum*, weaken the *Eyes*, offend the *Stomach*, affect the *Liver*, torment the *Bowels*, and diſcover their Malignity in dangerous and dreadful *Symptoms*. And therefore ſuch *Plants* as are rather *Medicinal* than *Nouriſhing* and *Refreſhing*, are ſtudiouſly to be rejected. So highly neceſſary it is, that what we ſometimes find in *old Books* concerning *Edules* of other Countries and Climates (frequently call'd by the Names of ſuch as are wholſome in ours, and among us) miſlead not the unskilful Gatherer; to prevent which, we read of divers *Popes* and *Emperors* that had ſometimes learned *Phyſicians* for their *Maſter-Cooks*; and that of Old an excellent *Cook* was reckon'd amongſt the *Eruditi*: I cannot here therefore but mention what we find in the Works of St. *Paulinus*, a Letter ſent to *Sulpitius Severus* againſt *Luxury*, and in Praiſe of *Frugality*; with another of *Severus's*

* Vide *Cardanum* de uſu Cibi.

rus's, who ſent him a *Cook*, with great Recommendations, for the particular Talent he had in dreſſing *Beans*, *Lettuce*, and other *Sallets*: His Name was *Victor*, and ſo welcome to the Holy Man, for his being likewiſe an excellent *Barber*. Upon this account I exceedingly approve of that charitable Advice of Mr. *Ray*, * (*Tranſact. Numb.* 238.) who thinks it the Intereſt of Mankind, that all Perſons ſhould be caution'd of advent'ring upon unknown Herbs and Plants to their Prejudice: Of ſuch I ſay, with our excellent † *Poet* (a little chang'd)

* *Vol.* xx.

Happy from ſuch conceal'd, if ſtill do lie,
Of Roots and Herbs th' unwholſome *Luxury.*

The Illuſtrious and Learned *Columna* has, by obſerving what † *Inſects* did uſually feed on, made Conjectures of the Nature of the Plants. But I ſhould not ſo readily adventure upon it on that account, as to its wholſomeneſs: For tho' indeed one may ſafely eat of a *Peach* or *Abricot*, after a *Snail* has been Taſter, I queſtion whether it might be ſo of all other Fruits and Herbs attack'd by other *Inſects*: Nor would one conclude, the *Hyoſcyamus* harmleſs, becauſe the *Cimex* feeds upon it, as the Learned Dr *Lyſter* has diſcover'd. Notice ſhould therefore be taken what *Eggs* of *Inſects* are found adhering to the Leaves of *Sallet*-Herbs, and frequently cleave ſo firmly to them, as not eaſily to be waſh'd off, and ſo not being taken notice of, paſſing for accidental and harmleſs Spots only, may yet produce very ill Effects.

† *Concerning this of Inſects, See Mr* Ray's *Hiſt. Plant.* lib. 1. cap. 24.

Grillus, who, according to the Doctrine of *Tranſmigration* (as *Plutarch* tells us) had, in his turn, been a *Beaſt*, diſcourſes how much better he fed and liv'd, than when he was turn'd to *Man* again, as knowing then what Plants were beſt and moſt proper for him; whilſt Men, *Sarcophagiſts*, (Fleſh-Eaters) in all this time were yet to ſeek. And 'tis indeed very evident, that Cattel, and other *πάνφαγα*, and *herbaceous* Animals which feed on Plants, are directed by their Smell, and accordingly make Election of their Food: But Men (beſides the *Smell* and *Taſte*) have, or ſhould have, *Reaſon*, *Experience*, and the Aids of *Natural Philoſophy*, to be their Guides in this Matter. We have heard of *Plants*, that (like the *Baſilisk*) kill and infect by * looking on them only; and ſome by the Touch. The Truth is, there's need of all the Senſes to determine *Analogically* concerning the Virtues and Properties even of the *Leaves* alone of many *Edule-Plants*: The moſt eminent Principles of near the whole Tribe of *Sallet* Vegetables, inclining rather to *acid* and *ſowre* than to any other quality, eſpecially ſalt, ſweet, or luſcious. There is therefore Skill and Judgment requir'd how to ſuit and mingle our *Sallet*-Ingredients, ſo as may beſt agree with the Conſtitution of the (vulgarly reputed) *Humours* of thoſe who either ſtand in need of, or affect theſe Refreſhments, and by ſo adjuſting them, that as nothing ſhould be ſuffer'd to domineer, ſo ſhould none of them loſe their genuine Guſt, Savour, or Vertue. To this end,

* *The poiſon'd Weed: I have ſeen a Man who was ſo poyſon'd with it, that the Skin peel'd off his Face, and yet he never touch'd it, only looked on it as he paſs'd by.* Mr. Stafford, *Philoſ. Tranſact.* Vol. III. Num. xi. p. 794.

The cooler, and moderately refreſhing, ſhould be choſen to extinguiſh Thirſt, attemper the Blood, repreſs Vapours, &c.

The hot, dry, aromatic, cordial and friendly to the Brain, may be qualify'd by the cold and moiſt: The bitter and Stomachical, with the

† Οὐδ' ὅσον ἐν μαλάχῃ τε καὶ ἀσφοδέλῳ μέγ' ὄνειαρ. COWLEY.
Κρύπτουσι γὰρ ἔχεσι θεοὶ βίον ἀνθρώποισι. HESIOD.

Sub-acid and gentler Herbs: The *Mordicant* and pungent, and ſuch as repreſs or diſcuſs Flatulency (revive the Spirits, and aid Concoction;) with ſuch as abate and take off the keenneſs, mollify and reconcile the more harſh and churliſh: The mild and inſipid, animated with the *piquant* and brisk: The Aſtringent and Binders, with ſuch as are Laxative and Deobſtruct: The over-ſluggiſh, raw, and unactive, with thoſe that are *Eupeptic*, and promote Concoction: There are *Pectorals* for the Breaſt and Bowels: Thoſe of middle Nature, according as they appear to be more or leſs *Specifick*; and as their Characters (tho' briefly) are deſcrib'd in our foregoing *Catalogue*: For notwithſtanding it ſeem in general, that raw *Sallets* and *Herbs* have experimentally been found to be the moſt ſovereign Diet in that *Endemial* (and indeed with us *Epidemical*, and almoſt univerſal) Contagion, the *Scorbute*, to which we of this Nation, and moſt other *Iſlanders*, are obnoxious; yet, ſince the *Naſturtia* are ſingly, and alone as it were, the moſt effectual and powerful Agents in conquering and expugning that cruel Enemy, it were enough to give the *Sallet-Dreſſer* direction how to chuſe, mingle, and proportion his Ingredients; as well as to ſhew what Remedies there are contained in our Magazine of *Sallet-Plants* upon all Occaſions, rightly marſhal'd, and skilfully apply'd. So as (with our * ſweet *Cowley*)

* Cowley, *Garden* Miſcel. Stanz. 8.

If thro' the ſtrong and beauteous Fence
Of Temperance and Innocence,
And wholſome Labours, and a quiet Mind,
Diſeaſes Paſſage find;
They muſt not think here to aſſail
A Land unarm'd, or without Guard;
They muſt fight for it, and diſpute it hard,
Before they can prevail;
Scarce any Plant is uſed here,
Which 'gainſt ſome Ail a Weapon does not bear.

This brings to my Memory, what I have heard of one Signior *Jaquinto*, *Phyſician* to Queen *Anne* (Mother to the Bleſſed *Martyr*, *Charles* the Firſt) and was ſo to one of the *Popes*: That obſerving the *Scurvy* and *Dropſy* to be the Epidemical and Dominant Diſeaſes of this Nation, he went himſelf into the *Hundreds* of *Eſſex*, (reputed the moſt unhealthy County of this *Iſland*) and us'd to follow the *Sheep* and *Cattel* on purpoſe to obſerve what Plants they chiefly fed upon; and of thoſe *Simples* compos'd an excellent *Electuary*, of extraordinary Effects againſt thoſe Infirmities.

Thus we are told, that the Vertue of the *Cophee* was diſcover'd by marking what the *Goats* ſo greedily brutted upon. So *Æſculapius* is ſaid to have reſtor'd diſmember'd *Hippolitus*, by applying ſome Simples he obſerv'd a * *Serpent* to have us'd to another dead *Serpent*.

We have ſaid how neceſſary it is, that in the Compoſure of a *Sallet* every Plant ſhould come in to bear its part, without being over-power'd by ſome Herb of a ſtronger Taſte, ſo as to endanger the native *Sapor* and Vertue of the reſt; but fall into their Places, like the *Notes* in

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* Tunc obſervatas Augur deſcendit in Herbas,
Uſus & Auxilio eſt Anguis ab Angue dato. OVID FAST. *lib.* vii.

Muſic, in which there ſhould be nothing harſh or grating: Altho' admitting ſome *Diſcords* (to diſtinguiſh and illuſtrate the reſt) ſtriking in the more ſprightly, and ſometimes gentler Notes, reconcile all Diſſonancies, and melt them into an agreeable Compoſition. Thus the comical Maſter-Cook, introduc'd by *Damoxenus*, when ask'd πῶς ἐϛιν ἀυτοῖς συμφονία; *What Harmony there was in Meats?* The very ſame (ſays he) that a *Diateſſaron*, *Diapente*, and *Diapaſon*, have one to another in a Conſort of Muſic: And that there was as great Care requir'd, not to mingle † *Sapores minime conſentientes*, jarring and repugnant Taſtes; looking upon him as a lamentable Ignorant, who ſhould be no better vers'd in *Democritus*. The whole Scene is very diverting, as *Athenæus* preſents it; and to the ſame Senſe *Macrobius*, Saturn. lib. i. cap. 1. In ſhort, the main Skill of the Artiſt lies in this:

What Choice to chuſe for Delicacy beſt;
What Order ſo contriv'd, as not to mix
Taſtes not well join'd, inelegant, but bring
Taſte after Taſte, upheld by kindlieſt Change.

As our * *Paradiſian Bard* introduces *Eve* dreſſing of a *Sallet* for her *Angelical* Gueſt.

Thus, by the diſcreet Choice and Mixture of the *Oxoleon*, *Oyl*, *Vinegar*, *Salt*, &c. the Compoſition is perfect; ſo as neither the *Prodigal*, *Niggard*, nor *Inſipid*, ſhould (according to the *Italian* Rule) preſcribe in my Opinion; ſince *one* may be too profuſe, the *other* † over-ſaving, and the *third* (like himſelf) give it no Reliſh at all. It may be too *ſharp*, if it exceed a grateful *Acid*; too *inſulſe* and flat, if the Profuſion be extreme. From all which it appears, that a wiſe Man is the proper Compoſer of an excellent *Sallet*, and how many *Tranſcendences* belong to an accompliſh'd *Sallet-Dreſſer*, ſo as to emerge an exact *Critic* indeed. He ſhould be skill'd in the Degrees, Terms, and various Species of *Taſtes*, according to the *Scheme* ſet us down in the *Tables* of the Learned || Dr. *Grew*, to which I refer the Curious.

|| Dr. Grew, Lect. vi. c. 2, 3.

'Tis moreover to be conſider'd, that *Edule* Plants are not in all their Taſtes and Virtues alike: For as Providence has made us to conſiſt of different Parts and Members, both internal and external; ſo require they different Juices to nouriſh and ſupply them: Wherefore the Force and Activity of ſome Plants lie in the *Root*; and even the *Leaves* of ſome *bitter Roots* are ſweet, and *è contra*. Of others, in the *Stem*, *Leaves*, *Buds*, *Flowers*, &c. Some exert their Vigor without *Decoction*; others being a little preſs'd or contus'd; others again *raw*, and beſt in Conſort; ſome alone, and *per ſe*, without any σκευασία, Pre-

† Sapores minime Conſentientes ϗ συμπλεκομένας ἒχϑ συμφώνϛ ἁφάς: Hæc deſpicere ingenioſi eſt artificis. *Neither did the Artiſt mingle his Proviſions without extraordinary Study and Conſideration:* Ἀλλὰ μίξας πάντα κϗ συμφωνίαν. Horum ſingulis ſeorſum aſſumptis, tu expedito: Sic ego tanquam Oraculo jubeo.——Itaque literarum ignarum Coquum, tu cum videris, & qui Democriti ſcripta omnia non perlegerit, vel potius, impromptu non habeat, eum deride ut futilem: Ac illum Mercede conducito, qui Epicuri Canonem uſu plane didicerit, *&c. as it follows in the* Gaſtronomia *of* Archeſtratus, Athen. lib. xxiii. *Such another* Braggadocio Cook Horace *deſcribes*,

Nec ſibi Cœnarum quivis temerè arroget artem
Non prius exactâ tenui ratione ſaporum. SAT. *lib.* ii. *Sat.* 4.

* Milton's *Paradiſe loſt.*

|| ——Qui tingat olus ſiccum muria vaſer in calice emptâ,
Ipſe ſacrum irrorans piper.——PERS. *Sat.* vi.

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paration, or Mixture at all. Care therefore muſt be taken by the *Collector*, that what he gathers anſwer to theſe Qualities; and that as near as he can, they conſiſt (I ſpeak of the *cruder Salleting*) of the *Oluſcula*, and *ex foliis pubeſcentibus*, or (as *Martial* calls them) *Prototomi rudes*, and very tendereſt Parts, *Gems*, young *Buds*, and even firſt Rudiments of their ſeveral Plants; ſuch as we ſometimes find in the *Craws* of the *Wood-Culver*, *Stock-Dove*, *Partridge*, *Pheaſants*, and other Upland Fowl, where we have a natural *Sallet*, pick'd, and almoſt dreſs'd to our Hands.

I. Preparatory to the Dreſſing therefore, let your herby Ingredients be exquiſitely cull'd, and cleans'd of all worm-eaten, ſlimy, canker'd, dry, ſpotted, or any ways vitiated Leaves. And then that they be rather diſcreetly ſprinkl'd, than over-much ſobb'd with Spring Water, eſpecially *Lettuce*, which Dr. * *Muffet* thinks impairs their Virtue; but this, I ſuppoſe, he means of the *Cabbage*-kind, whoſe Heads are ſufficiently protected by the outer Leaves which cover it. After waſhing, let them remain a while in the *Cullender*, to drain the ſuperfluous Moiſture: And laſtly, ſwing them all together gently in a clean coarſe Napkin; and ſo they will be in perfect Condition to receive the *Intinctus* following.

* *Muffet* de Diæta, *c.* 23.

II. That the *Oyl*, an Ingredient ſo indiſpenſibly and highly neceſſary, as to have obtain'd the Name of *Cibarium*, (and with us of *Sallet-Oyl*) be very clean, not high-colour'd, nor yellow; but with an Eye rather of a pallid *Olive*-green, without Smell, or the leaſt touch of rancid, or indeed of any other ſenſible Taſte or Scent at all; but ſmooth, light, and pleaſant upon the Tongue; ſuch as the genuine *Omphacine*, and native *Luca Olives* afford, fit to allay the Tartneſs of *Vinegar*, and other *Acids*, yet gently to warm and humectate where it paſſes. Some who have an Averſion to *Oyl*, ſubſtitute *freſh Butter* in its ſtead; but 'tis ſo exceedingly clogging to the Stomach, as by no means to be allow'd.

III. *Thirdly*, That the *Vinegar*, and other liquid *Acids*, perfectly clear, neither ſowre, *vapid*, or ſpent; be of the beſt Wine Vinegar, whether diſtill'd, or otherwiſe *aromatiz'd*, and impregnated with the Infuſion of *Clove-July-flowers*, *Elder*, *Roſes*, *Roſemary*, *Naſturtium*, &c. enrich'd with the Virtues of the Plant.

A *Verjuice* not unfit for *Sallet*, is made by a Grape of that Name, or the green immature Cluſters of moſt other Grapes preſs'd, and put into a ſmall Veſſel to ferment.

IV. *Fourthly*, That the *Salt*, (*aliorum Condimentorum Condimentum*, as *Plutarch* calls it) deterſive, penetrating, quickning, (and ſo great a Reſiſter of Putrefaction, and univerſal Uſe, as to have ſometimes merited divine Epithets) be of the brighteſt *Bay-grey-Salt*; moderately dry'd and *contus'd*, as being the leaſt corroſive: But of this, as of Sugar alſo, which ſome mingle with the Salt (as warming without heating) if perfectly refin'd, there would be no great Difficulty, provided none, ſave Ladies, were of the Meſs; whilſt the Perfection of *Sallets*, and that which gives them the Name, conſiſts in the grateful *Saline Acid* Point, temper'd as is directed, and which we find to be moſt eſteem'd by judicious Palates. Some, in the mean time, have been ſo nice, and luxuriouſly curious, as for the heightning, and (as they affect to ſpeak) giving the utmoſt *poinant* and *Relevée* in lieu of our vulgar *Salt*, do recommend and cry up the *Eſſential Salts* and *Spi-*

rits

rits of the moſt *Sanative Vegetables*; or ſuch of the *Alcalizate* and *Fix'd*, extracted from the *Calcination* of *Baulm*, *Roſemary*, *Wormwood*, *Scurvy-graſs*, &c. affirming, That without the groſs Plant, we might have healing, cooling, generous, and refreſhing *Cordials*, and all the *Materia Medica* out of the *Saltſeller* only: But to ſay no more of this Impertinence as to *Salts* of *Vegetables*; many indeed there be who reckon them not much unlike in Operation, however different in *Taſte*, *Cryſtals*, and *Figure*: It being a queſtion, whether they at all retain the Virtues and Faculties of their *Simples*, unleſs they cou'd be made without *Calcination*. *Franciſcus Redi* gives us his Opinion of this, in a *Proceſs* how they are to be prepar'd; and ſo does our Learned † Doctor (whom we lately nam'd) whether *Lixivial*, *Eſſential*, *Marine*, or other factitious *Salts* of Plants, with their Qualities, and how they differ: But ſince 'tis thought all *fix'd Salts* made the *common way*, are little better than our *common Salt*, let it ſuffice, that our *Sallet-Salt* be of the beſt ordinary *Bay-Salt*, clean, bright, dry, and without Clammineſs.

† *Dr.* Grew, *Anat. Plant.* Lib. 1. Sect. iv. Cap. 1. &c. *See alſo* Tranſ. *Num.* 107. *Vol.* ix.

Of *Sugar* (by ſome call'd *Indian-Salt*) as it is rarely us'd in *Sallet*, it ſhould be of the beſt refin'd, white, hard, cloſe, yet light and ſweet as the *Madera*'s: Nouriſhing, preſerving, cleanſing, delighting the Taſte, and preferable to *Honey* for moſt Uſes. *Note*, That both *this Salt*, and *Vinegar*, are to be proportion'd to the Conſtitution, as well as what is ſaid of the Plants themſelves. The one for cold, the other for hot Stomachs.

V. That the *Muſtard* (another noble Ingredient) be of the beſt *Tewksbury*; or elſe compos'd of the ſoundeſt and weightieſt *Yorkſhire Seed*, exquiſitely ſifted, winnow'd, and freed from the Husks, a little (not over-much) by the Fire temper'd to the conſiſtence of a Pap with *Vinegar*, in which Shavings of the *Horſe-Radiſh* have been ſteep'd: Then cutting an *Onion*, and putting it into a ſmall Earthen *Gally-Pot*, or ſome thick *Glaſs* of that Shape, pour the *Muſtard* over it, and cloſe it very well with a *Cork*. There be, who preſerve the Flower and Duſt of the bruiſed Seed in a well-ſtopp'd Glaſs, to temper, and have it freſh when they pleaſe. But what is yet, by ſome, eſteem'd beyond all theſe, is compos'd of the dry'd Seeds of the *Indian Naſturtium*, reduc'd to Powder, finely bolted, and mix'd with a little *Levain*, and ſo from Time to Time made freſh, as indeed all other *Muſtard* ſhould be.

Note, That the Seeds are pounded in a Mortar; or bruis'd with a poliſh'd *Cannon-bullet*, in a large wooden Bowl-diſh; or, which is moſt preferr'd, ground in a *Quern* contriv'd for this Purpoſe only.

VI. *Sixthly*, That the *Pepper* (white or black) be not bruis'd to too ſmall a Duſt; which, as we caution'd, is very Prejudicial. And here let me mention the *Root* of the *Minor Pimpinella*, or ſmall *Burnet Saxifrage*; which being dried, is, by ſome, extoll'd beyond all other *Peppers*, and more wholſome.

Of other *Strewings* and *Aromatizers*, which may likewiſe be admitted to enrich our *Sallet*, we have already ſpoken, where we mention *Orange* and *Limon-Peel*; to which may alſo be added *Jamaica-Pepper*, *Juniper-berries*, &c. as of ſingular Virtue.

Nor here ſhould I omit (the mentioning at leaſt of) *Saffron*, which the *German* Houſe-wives have a way of forming into Balls, by mingling it with a little *Honey*; which thoroughly dry'd, they reduce to Powder, and ſprinkle it over their *Sallets* for a noble *Cordial*. Thoſe of *Spain* and *Italy*, we know, generally make Uſe of this Flower, mingling its golden Tincture with almoſt every Thing they eat; but its being ſo apt to prevail above every Thing with which 'tis blended, we little encourage its Admittance into our *Sallet*.

VII. *Seventhly*, That there be the Yolks of freſh and new-laid *Eggs*, boil'd moderately hard, to be mingled and maſh'd with the *Muſtard*, *Oil*, and *Vinegar*; and part to cut into Quarters, and eat with the Herbs.

VIII. *Eighthly*, (according to the *ſuper*-curious) that the *Knife*, with which the *Sallet-Herbs* are cut (eſpecially *Oranges*, *Limons*, &c. be of *Silver*, and by no means of *Steel*, which all *Acids* are apt to corrode, and retain a Metallick Reliſh of.

IX. *Ninthly* and *Laſtly*, That the *Saladiere*, (Sallet-Diſhes) be of *Porcelane*, or of the *Holland-Delf-Ware*; neither too deep nor ſhallow, according to the quantity of the *Sallet*-Ingredients; *Pewter*, or even *Silver*, not at all ſo well agreeing with *Oil* and *Vinegar*, which leave their ſeveral Tinctures. And *Note*, That there ought to be one of the Diſhes, in which to beat and mingle the liquid *Vehicles*; and a ſecond to receive the crude Herbs in, upon which they are to be pour'd; and then with a Fork and a Spoon kept continually ſtirr'd, till all the Furniture be equally moiſten'd: Some, who are Husbands of their *Oil*, pour at firſt the *Oil* alone, as more apt to communicate and diffuſe its Slipperineſs, than when it is mingled and beaten with the *Acids*, which they pour on laſt of all; and 'tis incredible how ſmall a quantity of *Oil* (in this Quality, like the gilding of *Wyre*) is ſufficient to imbue a very plentiful Aſſembly of *Sallet-Herbs*.

The *Sallet-Gatherer* likewiſe ſhould be provided with a light, and neatly made *Withy-Dutch-Basket*, divided into ſeveral Partitions.

Thus inſtructed and knowing in the *Apparatus*; the *Species*, *Proportions*, and manner of *Dreſſing*, according to the ſeveral Seaſons, you have in the following Table.

It being one of the Enquiries of the Noble * Mr. *Boyle*, what *Herbs* were proper and fit to make *Sallets* with, and how beſt to order them? We have here (by the aſſiſtance of Mr. *London*, His Majeſty's Principal Gardener) reduc'd them to a competent Number, not exceeding *Thirty Five*, but which may be vary'd and enlarg'd, by taking in, or leaving out any other *Sallet*-Plant, mention'd in the foregoing Liſt, under theſe three or four Heads.

* *Philoſ. Tranſ.* Vol. III. Numb. xl. p. 799.

	Species.		Ordering and Culture.
IX. Blanch'd.	1. *Endive*,		Ty'd-up to Blanch.
	2. *Cichory*,		Earth'd-up.
	3. *Sellery*,		
	4. *Sweet-Fennel*,		
	5. *Rampions*,		
	6. *Roman*	*Lettuce.*	Ty'd-up to Blanch.
	7. *Coſſe*		
	8. *Sileſian*		Ty'd cloſe up.
	9. *Cabbage*		Pome and Blanch of themſelves.
XXVI. Green Unblanch'd.	10. *Lop-Lettuce*,		Leaves, all of a middling Size.
	11. *Corn-Sallet*,		
	12. *Purſlane*,		
	13. *Creſſes*, Broad,		Seed-Leaves, and the next to them.
	14. *Spinach*, Curl'd,		
	15. *Sorrel*, French,		The fine young Leaves only with the firſt Shoots.
	16. *Sorrel*, Greenland,		
	17. *Radiſh*,		Only the tender young Leaves.
	18. *Creſſes*,		The Seed-Leaves, and thoſe only next them.
	19. *Turnip*,		The Seed-Leaves only.
	20. *Muſtard*,		
	21. *Survy-graſs*,		
	22. *Chervil*,		The young Leaves immediately after the Seedlings.
	23. *Burnet*,		
	24. *Rocket*, Spaniſh,		
	25. *Perſley*,		
	26. *Tarragon*,		The tender Shoots and Tops.
	27. *Mints*,		
	28. *Sampier*,		The young tender Leaves and Shoots.
	29. *Balm*,		
	30. *Sage*, Red,		
	31. *Shalots*,		The tender young Leaves.
	32. *Cives* and *Onion*,		
	33. *Naſturtium*, Indian,		The Flowers and Bud-Flowers.
	34. *Rampion*, Belgrade,		The Seed-Leaves and young Tops.
	35. *Tripe-Madame*,		

Month

Month.	Ord. & Cult.	Species.	Proportion.
January,	Blanch'd as before	*Rampions*,	10
		Endive,	2
		Succory,	5 Roots in Number.
		Fennel, Sweet,	10
		Sellery,	4
	Green and Unblanch'd	*Lamb-Lettuce*,	A Pugil of each.
		Lop-Lettuce,	
		Radiſh,	Three Parts of each.
February,		*Creſſes*,	
		Turnips,	Of each One Part.
		Muſtard Seedlings,	
		Scurvy-graſs,	
		Spinach,	Two Parts.
		Sorrel, Greenland,	One Part of each.
and		*Sorrel*, French,	
		Chervil, Sweet,	
		Burnet,	
		Rocket,	
		Tarragon,	Twenty large Leaves.
		Balm,	One ſmall Part of each.
March,		*Mint*,	
		Sampier,	
		Shalots,	Very few.
		Cives,	
		Cabbage-Winter,	Two Pugils or ſmall Handfuls.
April,	Blanch'd	*Lop* / *Sileſian* Winter / *Roman* Winter } *Lettuce*	Of each a Pugil.
	Green Herbs Unblanch'd.	*Radiſhes*,	Three Parts.
		Creſſes,	Two Parts.
		Purſelan,	One Faſciat, or pretty full Gripe.
		Sorrel, French,	Two Parts.
		Sampier,	One Part.
May,	Note, *That the young Seedling Leaves of* Orange *and* Limon *may all theſe Months be mingled with the Sallet.*	*Onions*, young,	Six Parts.
		Sage-tops, the Red,	Two Parts.
		Perſly,	Of each One Part.
and		*Creſſes*, the Indian,	
		Lettuce, Belgrade,	
		Tripe-Madame,	
June,		*Chervil*, Sweet,	
		Burnet,	Two Parts.
July,	Blanch'd, *and may be eaten by themſelves with ſome* Naſturtium-*Flowers.*	Sileſian *Lettuce*,	One whole *Lettuce*.
		Roman *Lettuce*,	Two Parts.
		Creſs,	
		Cabbage,	Four Parts.
Auguſt,	Green Herbs *by themſelves, or mingl'd with the* Blanch'd.	*Creſſes*,	Two Parts.
		Naſturtium,	
		Purſlane,	One Part.
		Lop-Lettuce,	
and		Belgrade, *or* Crumpen-*Lettuce*,	Two Parts.
		Tarragon,	One Part.
		Sorrel, French,	Two Parts of each.
September,		*Burnet*,	
		Tripe-Madame,	One Part.
October,	Blanch'd	*Endive*,	Two if large, four if ſmall, Stalk and Part of the Root and tendereſt Leaves.
		Sellery,	
		Lop-Lettuce,	An Handful of each.
		Lambs-Lettuce,	
		Radiſh,	Three Parts.
November,		*Creſſes*,	Two Parts.
	Green	*Turnips*,	One Part of each.
and		*Muſtard* Seedlings,	
		Creſſes, Broad,	Two Parts of each.
December,		*Spinach*,	

But all these sorts are not to be had at the very same time, and therefore we have divided them into the *Quarterly Seasons*, each containing and lasting Three Months.

Note, That by *Parts* is to be understood a *Pugil:* which is no more than one does usually take up between the Thumb and the two next Fingers. By *Fascicule*, a reasonable full Gripe, or Handful.

Farther Directions concerning the proper Seasons *for the* Gathering, Composing, *and* Dressing *of a* SALLET.

AND *First*, as to the *Season*, both *Plants* and *Roots* are then properly to be *gather'd*, and in prime, when most they abound with Juice and in Vigour: Some in the *Spring*, or a little anticipating it before they Blossom, or are in full Flower: Some in the *Autumnal* Months; which later Season many prefer the Sap of the Herb, tho' not in such Exuberance, yet as being then better concocted, and so render'd fit for *Salleting*, 'till the Spring begins afresh to put forth new and tender Shoots and Leaves.

This indeed, as to the *Root* newly taken out of the Ground, is true; and therefore should such have their *Germination* stopp'd the sooner: The approaching and prevailing Cold, both maturing and impregnating them; as does Heat the contrary, which now would but exhaust them: But for those other *Esculents* and Herbs employ'd in our *Compositions* of *Sallets*, the early Spring, and ensuing Months (till they begin to mount, and prepare to *Seed*) is certainly the most natural and kindly Season to collect and accommodate them for the Table. Some Critical Impertinents refer not to the very Day only, but to the very Hour and Minute; for instance, the *Bellis-major* to the *4th*, *5th*, *6th*, and *7th* of *April* before Sun-rising, and certain Minutes before or after, to render the Roots *emollient*, and prevalent against the *Palsy*: But for the *Hemeroids* in *June*, Three Days before the Full, in the Evening. There is indeed, in the gathering a *Melon*, some Accuracy to be observ'd as to the time of the Day, in respect of *Sun*, and just point of Perfection: But for this let none consult *Culpeper*, or the *Figure-flingers*, to inform them when the governing *Planet* is in its *Exaltation*; but look upon the *Fruits* and *Plants* themselves, and judge of their Virtues by their own Complexions.

Moreover, in *Gathering*, respect is to be had to their Proportions, as provided for in the *Table* under that Head, be the Quality whatsoever: For tho' there is indeed nothing more wholsome than *Lettuce* and *Mustard* for the *Head* and *Eyes*; yet either of them eaten in excess, were highly prejudicial to them both: Too much of the *first* extreamly debilitating and weakning the *Ventricle*, and hastning the further decay of sickly *Teeth*; and of the *second*, the *Optic Nerves*, and *Sight* it self: The like may be said of all the rest. I conceive therefore, a prudent Person, well acquainted with the Nature and Properties of *Sallet-Herbs*, &c. to be both the fittest *Gatherer* and *Composer* too; which yet will require no great Cunning, after once he is acquainted with our *Table* and *Catalogue*.

We purpoſely, and *in tranſitu* only, take notice here of the Pickl'd, *Muriated*, or otherwiſe prepared Herbs; excepting ſome ſuch Plants, and Proportions of them, as are hard of Digeſtion, and not fit to be eaten altogether *crude*, (of which in the *Appendix*) and among which I reckon *Aſhen-keys*, *Broom-buds* and *Pods*, *Haricos*, *Gurkems*, *Olives*, *Capers*, the Buds and Seeds of *Naſturtia*, *Young Walnuts*, *Pine-apples*, *Eringo*, *Cherries*, *Cornelians*, *Berberries*, &c. together with ſeveral Stalks, Roots, and Fruits; ordinary Pot-herbs, *Anis*, *Ciſtus Hortorum*, *Horminum*, *Pulegium*, *Satureia*, *Thyme*; the entire Family of Pulſe and *Legumena*; or other *Sauces*, *Pies*, *Tarts*, *Omlets*, *Tanſy*, *Farces*, &c. *Condites* and Preſerves with *Sugar* by the Hand of Ladies; tho' they are all of them the genuine Production of the *Garden*, and mention'd in our *Kalendar*, together with their Culture; whilſt we confine our ſelves to ſuch Plants and *Eſculenta* as we find at hand, delight our ſelves to gather, and are eaſily prepar'd for an *Extemporary Collation*, or to uſher in, and accompany other (more ſolid, tho' haply not more agreeable) Diſhes, as the Cuſtom is.

But there now ſtarts up a Queſtion, Whether it were better, or more proper, to *begin* with *Sallets*, or *end* and conclude with them? Some think the harder Meats ſhould firſt be eaten for better Concoction; others thoſe of eaſieſt Digeſtion, to make way, and prevent Obſtruction; and this makes for our *Sallets*, *Horarii*, and *Fugaces Fructus* (as they call 'em) to be eaten firſt of all, as agreeable to the general Opinion of the great *Hippocrates*, and *Galen*, and of *Celſus* before him. And therefore the *French* do well to begin with their *Herbaceous Pottage*; and for the *cruder* a Reaſon is given:

* *Prima tibi dabitur Ventri* Lactuca *movendo*
Utilis, & Poris fila reſecta ſuis.

* Mart. *Epig. lib* xi. 39.

And tho' this Cuſtom came in about *Domitian*'s Time †, ὁ μὲν ἀρχαῖος, they anciently did quite the contrary,

|| *Grataque nobilium Lactuca ciborum.*

† Athen. l. 2. *Of which Change of Diet ſee* Plut. iv. *Sympoſ.* 9. Plinii *Epiſt.* 1. *ad Eretrium.*

|| Virg. *Mereto.*

But of later Times, they were conſtant at the *Ante-cœnia*, eating plentifully of *Sallet*, eſpecially of *Lettuce*, and more refrigerating Herbs. Nor without Cauſe: For drinking liberally, they were found to expel and allay the Fumes and Vapours of the *genial Compotation*, the ſpiritous Liquor gently conciliating Sleep: Beſides, that being of a crude Nature, more diſpos'd, and apt to fluctuate, corrupt, and diſturb a ſurcharg'd Stomach, they thought convenient to begin with *Sallets*, and innovate the ancient Uſage.

* ——— *Nam Lactuca innatat acri*
Poſt Vinum Stomacho ———

* Hor. *Sat. l.* 2. *Sat.* 4.

For if on drinking Wine you Lettuce eat,
It floats upon the Stomach———

The *Spaniards*, notwithſtanding, eat but ſparingly of Herbs at Dinner, eſpecially *Lettuce*, beginning with *Fruit*, even before the *Olio* and Hot-Meats come to the Table; drinking their Wine pure, and eating the beſt Bread in the World; ſo as it ſeems the Queſtion ſtill remains undecided with them,

† *Claudere*

† Mart. *Ep. l.* v. *Ep.* 17.

† *Claudere quæ cænas* Lactuca *ſolebat avorum,*
Dic mihi cur noſtras inchoat illa dapes?

The *Sallet*, which of old came in at laſt,
Why now with it begin we our Repaſt?

* *Concerning the Uſe of Fruit (beſides many others) whether beſt to be eaten before or after Meals? Publiſhed by a Phyſician of* Rochel, *and render'd out of* French *into* Engliſh. *Printed by* T. Baſſet *in* Fleetſtreet.

And now ſince we mention'd *Fruit*, there riſes another Scruple: Whether *Apples*, *Pears*, *Abricots*, *Cherries*, *Plums*, and other Tree, and *Ort-yard-Fruit*, are to be reckon'd among *Salleting*; and when likewiſe moſt ſeaſonably to be eaten? But as none of theſe do properly belong to our *Catalogue* of *Herbs* and *Plants*, to which this Diſcourſe is confin'd (beſides what we may occaſionally ſpeak of hereafter) there is a very uſeful * Treatiſe on that Subject already Publiſh'd. We haſten then in the next Place to the *Dreſſing* and *Compoſing* of our *Sallet*: For by this time, our Scholar may long to ſee the *Rules* reduc'd to *Practice*, and refreſh himſelf with what he finds growing among his own *Lactuceta*, and other Beds of the *Kitchen-Garden*.

DRESSING.

I AM not ambitious of being thought an excellent *Cook*, or of thoſe who ſet up and value themſelves for their Skill in *Sauces*; ſuch as was *Mithacus* a *Culinary Philoſopher*, and other *Eruditæ Gulæ*; who read Lectures of *Hautgouts*, like the *Archeſtratus* in *Athenæus*: Tho' after what we find the *Heroes* did of Old, and ſee them chining out the ſlaughter'd *Ox*, dreſſing the Meat, and do the Offices of both *Cook* and *Butcher*, (for ſo * *Homer* repreſents *Achilles* himſelf, and the reſt of thoſe Illuſtrious *Greeks*) I ſay, after this, let none reproach our *Sallet-Dreſſer*, or diſdain ſo clean, innocent, ſweet, and natural a Quality, compar'd with the Shambles Filth and *Nidor*, Blood and Cruelty; whilſt all the World were *Eaters* and *Compoſers* of *Sallets* in its beſt and brighteſt Age.

* Achilles, Patroclus, Automedon. *Iliad.* ix. & *alibi.*

The Ingredients therefore gather'd and proportion'd, as above, let the *Endive* have all its outſide Leaves ſtripp'd off, ſlicing *in* the White: In like manner the *Sellery* is alſo to have the hollow green Stem or Stalk trimm'd and divided; ſlicing in the blanched Part, and cutting the Root into four equal Parts.

Lettuce, *Creſſes*, *Radiſh*, &c. (as was directed) muſt be exquiſitely pick'd, cleans'd, waſh'd, and put into the Strainer; ſwing'd, and ſhaken gently, and, if you pleaſe, ſeparately, or all together; becauſe ſome like not ſo well the *blanch'd* and bitter Herbs, if eaten with the reſt: Others mingle *Endive*, *Succory*, and *Rampions*, without diſtinction, and generally eat *Sellery* by itſelf, as alſo Sweet *Fennel*.

From *April* till *September* (and during all the hot *Months*) may *Guiney-Pepper* and *Horſe-Radiſh* be left out; and therefore we only mention them in the Dreſſing, which ſhould be in this manner.

Your *Herbs* being handſomly parcell'd, and ſpread on a clean Napkin before you, are to be mingl'd together in one of the Earthen glaz'd Diſhes: Then, for the *Oxolean*; take of clear, and perfectly good *Oyl-Olive*, three Parts; of ſharpeſt *Vinegar* (* ſweeteſt

(* ſweeteſt of all *Condiments*) *Limon*, or Juice of *Orange*, one Part; and therein let ſteep ſome Slices of *Horſe-Radiſh*, with a little *Salt*: Some, in a ſeparate *Vinegar*, gently bruiſe a *Pod* of *Guiney-Pepper*, ſtraining both the *Vinegars* apart, to make uſe of either, or one alone, or of both, as they beſt like; then add as much *Tewksbury*, or other dry *Muſtard* grated, as will lie upon an Half-Crown Piece: Beat and mingle all theſe very well together; but pour not on the *Oyl* and *Vinegar*, till immediately before the *Sallet* is ready to be eaten: And then with the *Yolk* of two new-laid *Eggs* (boil'd and prepar'd, as before is taught) ſquaſh and bruiſe them all into maſh with a Spoon; and laſtly, pour it all upon the *Herbs*, ſtirring and mingling them till they are well and throughly imbib'd; not forgetting the Sprinklings of *Aromatics*, and ſuch Flowers as we have already mentioned, if you think fit, and garniſhing the Diſh with the thin Slices of *Horſe-Radiſh*, *Red Beet*, *Berberries*, &c.

* *For ſo ſome pronounce it.* V. Athenæum *Deip. Lib.* II. *Cap.* 26. ἡδύσμα, *quaſi* ἁδύσμα, *perhaps for that it incites Appetite, and cauſes Hunger, which is the beſt Sauce.*

Note, That the *Liquids* may be made more or leſs *Acid*, as is moſt agreeable to your Taſte.

Theſe *Rules* and *Preſcriptions* duly *obſerv'd*, you have a *Sallet* (for a Table of Six or Eight Perſons) *dreſs'd*, and accommodated *ſecundum Artem*: For, as the † Proverb has it,

† Cratinus in Glauco.

Οὐ παντὸς ἀνδρός ἐστιν ἀρτῦσαι καλῶς.

Non eſt cujuſvis recte condire.

And now after all we have advanc'd in favour of the *Herbaceous* Diet, there ſtill emerges a Third Enquiry; namely, Whether the Uſe of *crude Herbs* and *Plants* are ſo wholſome as is pretended?

What Opinion the Prince of Phyſicians had of them, we ſhall ſee hereafter; as alſo what the Sacred Records of elder Times ſeem to infer, before there were any Fleſh-Shambles in the World; together with the Reports of ſuch as are often converſant among many Nations and People who to this Day, living on *Herbs* and *Roots*, arrive to incredible Age, in conſtant Health and Vigor: Which, whether attributable to the *Air* and *Climate*, *Cuſtom*, *Conſtitution*, &c. ſhould be enquir'd into; eſpecially, when we compare the *Antediluvians* mention'd *Gen.* i. 29. — the whole *Fifth* and *Ninth* Chapters, *ver.* 3. confining them to *Fruit* and wholſome *Sallets*: I deny not that both the *Air* and *Earth* might then be leſs humid and clammy, and conſequently Plants and Herbs better fermented, concocted, and leſs rheumatick, than ſince, and preſently after; to ſay nothing of the infinite Numbers of putrid Carcaſſes of dead Animals, periſhing in the Flood, (of which I find few if any, have taken notice) which needs muſt have corrupted the Air: Thoſe who live in Marſhes, and uliginous Places, (like the Hundreds of *Eſſex*) being more obnoxious to *Fevers*, *Agues*, *Pleuriſies*, and generally unhealthful: The Earth alſo then a very Bog, compar'd with what it likely was before that deſtructive *Cataclyſm*, when Men breath'd the pure *Paradiſian* Air, ſucking in a more *æthereal*, nouriſhing, and baulmy *Pabulum*, ſo fouly vitiated now, thro' the Intemperance, Luxury, and ſofter Education and Effeminacy of the Ages ſince.

Cuſtom and *Conſtitution* come next to be examin'd, together with the Qualities, and *Vertue* of the Food; and, I confeſs, the two firſt,

firſt, eſpecially that of *Conſtitution*, ſeems to me the more likely Cauſe of Health, and conſequently of Long-life; which induc'd me to conſider of what Quality the uſual *Sallet* Furniture did more eminently conſiſt, that ſo it might become more ſafely applicable to the Temper, Humour, and Diſpoſition of our Bodies; according to which the various Mixtures might be regulated and proportion'd: There's no doubt, but thoſe whoſe Conſtitutions are cold and moiſt, are naturally affected with Things which are hot and dry; as on the contrary, hot and dry Complexions, with ſuch as cool and refrigerate; which perhaps made the *Junior Gordian* (and others like him) prefer the *frigidæ Menſæ* (as of old they call'd *Sallets*) which, according to *Cornelius Celſus*, is the fitteſt Diet for *Obeſe* and corpulent Perſons, as not ſo nutritive, and apt to pamper; and conſequently, that for the cold, lean, and emaciated, ſuch Herby Ingredients ſhould be made Choice of, as warm, and cheriſh the natural Heat, depure the Blood, breed a laudable Juice, and revive the Spirits: And therefore my Lord * *Bacon* ſhews what are beſt raw, what boil'd, and what Parts fitteſt to nouriſh. *Galen*, indeed, ſeems to exclude them all, unleſs well accompany'd with their due Correctives, of which we have taken Care: Notwithſtanding yet, that even the moſt *Crude* and *Herby*, actually cold and weak, may potentially be hot and ſtrengthning, as we find in the moſt vigorous Animals, whoſe Food is only Graſs. 'Tis true, indeed, Nature has providentially mingled and dreſs'd a *Sallet* for them in every Field, beſides what they diſtinguiſh by Smell; nor queſtion I, but Man at firſt knew what Plants and Fruits were good before the Fall, by his natural Sagacity, and not Experience; which ſince, by Art and Trial, and long Obſervation of their Properties and Effects, they hardly recover. In ſhort, I am ſo well ſatisfy'd of the wonderful, though yet undetected, Virtue of Plants and Vegetables, applicable to all human Infirmities whatſoever, (extreme old Age excepted, and the irreverſible Decree, that we all muſt die) as ſhews, that GOD, by his *Omniſcience*, knowing that Man would tranſgreſs, and that ſpontaneouſly, (though left entirely free,) providentially endow'd the Vegetable with thoſe admirable Properties we daily diſcover in them, and yet remain'd conceal'd; ſince otherwiſe (had our firſt Parent perſiſted in his Integrity) there had been no uſe of Remedies, no Sickneſs or Diſeaſe requiring them: But to return, as to what in the preſent State Things are, ſuppoſing with † *Cardan*, that Plants nouriſh little, they hurt as little. Nay, Experience tells us, that they not only hurt not at all, but exceedingly benefit thoſe who uſe them; endu'd as they are with ſuch admirable Properties, as they every Day diſcover: For ſome Plants not only nouriſh laudably, but induce a manifeſt and wholſome Change; as *Onions*, *Garlick*, *Rochet*, &c. which are both nutritive and warm; *Lettuce*, *Purſelan*, the *Intybs*, &c. and indeed moſt of the *Olera* refreſh and cool: And as their reſpective Juices being converted into the Subſtances of our Bodies, they become *Aliment*; ſo in regard of their Change and Alteration, we may allow them *Medicinal*; eſpecially the greater Numbers, among which we all this while have Skill but of very few (not only in the vegetable Kingdom, but in the whole *Materia Medica*) which may be juſtly call'd *Infallible Specifics*, and upon whoſe Performance we may as ſafely depend, as we may on ſuch as familiarly we uſe for a crude *Herb-Sallet*; diſcreetly choſen, mingled, and dreſs'd accordingly:

* Nat. Hiſt. IV. *Cent.* VII. 130. *See* Ariſt. Prob. *Sect.* xx. *Quæſt.* 36. *Why ſome Fruits and Plants are beſt raw, others boil'd, roaſted, &c. becoming ſweeter; but the Crude more ſapid and grateful.*

† Card. *Contradicent. Med.* l. iv. *Cant.* 18. Diphilus *not at all.* Athenæus.

ingly: Not but that many of them may be improv'd, and render'd better in Broths and Decoctions, than in *Oil*, *Vinegar*, and other Liquids and Ingredients: But as this holds not in all, nay, perhaps in very few comparatively, (provided, as I ſaid, the Choice, Mixture, Conſtitution, and *Seaſon* rightly be underſtood) we ſtand up in Defence and Vindication of our *Sallet*, againſt all Attacks and Oppoſers whoever.

We have mentioned *Seaſon*, and, with the great *Hippocrates*, pronounce them more proper for the Summer than the Winter; and when thoſe Parts of Plants us'd in *Sallet* are yet tender, delicate, and impregnated with the Virtue of the Spring, to cool, refreſh, and allay the Heat and Drought of the Hot and *Bilious*, Young and over-*Sanguine*, Cold, *Pituit*, and Melancholy: In a word, for Perſons of all Ages, Humours and Conſtitutions whatſoever.

To this of the *Annual Seaſons*, we add that of *Culture* alſo, as of very great Importance: And this is often diſcover'd in the Taſte, and conſequently in the Goodneſs of ſuch Plants and *Salleting* as are rais'd, and brought us freſh out of the Country, compar'd with thoſe which the Avarice of the *Gardiner*, or Luxury rather of the Age, tempts them to force and *reſuſcitate* of the moſt deſirable and delicious Plants.

It is certain, ſays a * learned Perſon, that about populous Cities, where Grounds are over-forc'd for Fruit and early *Salleting*, nothing is more unwholſome. Men in the Country look ſo much more healthy and freſh; and commonly are longer liv'd than thoſe who dwell in the Middle and Skirts of vaſt and crowded Cities, environ'd with rotten Dung, loathſome and common *Lay-Stalls*; whoſe noiſom Steams, wafted by the Wind, poiſon and infect the ambient Air, and vital Spirits, with thoſe pernicious Exhalations and Materials of which they make the *Hot Beds* for the raiſing of thoſe *Præcoces* indeed, and forward Plants and Roots for the wanton Palate; but which being corrupt in the Original, cannot but produce malignant and ill Effects to thoſe who feed upon them. And the ſame was well obſerv'd by the *Editor* of our famous *Roger Bacon*'s Treatiſe concerning the *Cure of Old Age*, and *Preſervation of Youth*: There being nothing ſo proper for *Sallet Herbs*, and other *Edule Plants*, as the genial and natural Mould, impregnate, and enrich'd with well-digeſted Compoſt (when requiſite) without any Mixture of Garbage, odious Carrion, and other filthy Ordure, not half conſum'd and ventilated, and indeed reduc'd to the next Diſpoſition of Earth it ſelf, as it ſhould be; and that in ſweet, † riſing, aery, and moderately perflatile Grounds, where not only *Plants* but *Men* do laſt, and live much longer. Nor doubt I, but that every Body would prefer Corn and other Grain, rais'd from *Marle*, *Chalk*, *Lime*, and other ſweet Soil and Amendments, before that which is produc'd from the *Dunghil* only. Beſide, Experience ſhews, that the rankneſs of *Dung* is frequently the cauſe of Blaſts and Smuttineſs; as if the *Lord* of the *Univerſe*, by an Act of viſible Providence would check us, to take heed of all unnatural Sordidneſs and Mixtures. We ſenſibly find this difference in Cattle and their Paſture; but moſt powerfully in *Fowl*, from ſuch as are nouriſh'd with Corn, ſweet and dry Food: And as of vegetable *Meats*, ſo of *Drinks*, 'tis obſerv'd, that the ſame Vine, according to the Soil, produces a *Wine* twice as heady as in the ſame, and a leſs forc'd Ground; and the like I

* *Sir* Thomas Brown's *Miſcel.*

† Caule ſuburbano qui ſiccis crevit in agris dulcior. — Hor. *Sat.* l. ii. § 4.

believe of all other Fruit; not to determine any Thing of the *Peach*, ſaid to be Poiſon in *Perſia*, becauſe 'tis a *vulgar Error*. In the mean while, this is highly remarkable, (if conſtant) that ſince the Conflagration, the ſo frequent *Lay-Stalls* of Dung, and other noxious Filth, which poiſon'd the ambient Air in and about the City of *London*, have been remov'd, the Pits and Receptacles fill'd up, drain'd, made level, and in divers Places built upon, and turn'd into ample Squares, *Piazzas*, and Streets, (as *Bridewell-Dock*, *Lincoln*'s-*Inn-Fields*, *Covent-Garden*, the great Square and Grounds about St. *James*'s, and ſeveral other greater, ſome in the very middle of the Town) I ſay, ſince this Purgation, it has been obſerv'd, that the *Bills* of *Weekly Mortality* have conſiderably decreas'd, the Number of Inhabitants and Buildings exceedingly increaſing, being compar'd with the former.

And now to return to thoſe *Olitories*, moſt ſenſibly affected with thoſe Contaminations, and for that, among other Things, nothing more betrays its unclean and ſpurious Birth, than what is ſo impatiently long'd after, as *early Aſparagus*, &c. * Dr. *Liſter*, (according to his communicative and obliging Nature) has taught us how to raiſe ſuch as our *Gardiners* cover with naſty Litter during the Winter; by rather laying of clean and ſweet *Wheat-Straw* upon the Beds, *ſuper-ſeminating* and over-ſtrowing them thick with the Powder of bruiſed *Oyſter-Shells*, &c. to produce that moſt tender and delicious *Sallet*. And there is an Art ſo to raiſe thoſe Plants, in the midſt of the ſevereſt *Winter-Seaſon*, without the leaſt Taint of the fulſome Bed, to the loſs of the Mother-Roots, which always periſh in exerting their utmoſt Vigor (like a Woman in difficult Travail) with their Life; as ſhall not only preſerve both the one and the other, but be exceedingly agreeable: It being the loſs of the Mother-Plant in the vulgar Method, which renders this Delicacy ſo dear in the *Market*, in recompenſe of the *Gardiner*'s Loſs, to gratify the luxurious *Palate*: But this, and other *Secrets* of Horticulture Myſteries, are reſerv'd for another Occaſion: In the mean while, if nothing will ſatisfy ſave what is rais'd *Extempore*, and by Miracles of Art, ſo long before the Time; let them ſtudy (like the *Adepti*) as did a very ingenious Gentleman whom I knew; that having ſome Friends of his accidentally come to dine with him, and wanting an early Sallet, before they ſat down to Table, ſowed *Lettuce*, and ſome other Seeds, in a certain Compoſition of Mould he had prepared; which within the Space of two Hours, being riſen near two Inches high, preſented them with a delicate and tender *Sallet*; and this, without making uſe of any nauſeous or fulſome Mixture; but of Ingredients not altogether ſo cheap perhaps. *Honoratus Faber* (no mean *Philoſopher*) ſhews us another Method, by ſowing the Seeds ſteep'd in *Vinegar*, caſting on it a good quantity of *Bean-Shell* Aſhes, irrigating them with *Spirit of Wine*, and keeping the Beds well cover'd under dry Matts. Such another Proceſs for the raiſing early *Peas* and *Beans*, &c. we have the like † Accounts of, eſpecially that of Mr. *Gifford* Miniſter of *Montacute*, as follows. May *the* 10*th*, 1679. *I ſteep'd Nine Beans firſt in Sack Five Days, then being taken out, I put them in Sallet-Oil Five Days, then in Brandy Four Days, and about Noon ſet them in an Hot-Bed againſt a South-Wall, caſting all the Liquor wherein they had been infus'd (and reſerv'd in ſeveral Pots) negli-*

* Tranſact. Philoſ. *Num.* xxv.

† *Numb.* xviii.

negligently about the Holes: The ſame Day, within Three Hours Space, (that is, about Two a Clock) Eight of the Nine came up, and were then a foot High, with all their Leaves, (as other growing Beans uſe to have) and on the Morrow a Foot more in Height; the Third Day they Bloſſom'd, and in a Week were Podded, and full Ripe, and ſome even black-ey'd, but none of them bigger than our common Field or Horſe-Beans, though what I try'd the Experiment with were of the largeſt. The *Proceſs* was nothing ſo ſpeedy as thoſe mention'd. And after all, were it much more practicable and certain, I confeſs I ſhould not be fonder of them, than of ſuch as the honeſt induſtrious Country-Man's Field, and Good-Wife's Garden, ſeaſonably produce; where they are legitimately born in juſt Time, and without forcing Nature.

But to return again to *Health*, and *Long-Life*, and the Wholſomeneſs of the Herby-Diet, * *John Beverovicius*, a Learned Phyſician, (out of *Peter Moxa*, a *Spaniard*) treating of the extreme Age which thoſe of *America* uſually arrive to, aſſerts in behalf of crude and natural Herbs: *Diphilus* of Old, † as *Athenæus* tells us, was one of the other Side, againſt all the Tribe of *Olera* in general; and *Cardan* of late (as already noted) no great Friend to them, affirming-Fleſh Eaters to be much wiſer and more ſagacious. But this his || learned Antagoniſt utterly denies; whole Nations, Fleſh-devourers (ſuch as the fartheſt *Northern*) becoming heavy, dull, unactive, and much more ſtupid than the *Southern*; and ſuch as feed much on Plants, are more acute, ſubtle, and of deeper Penetration; witneſs the *Chaldæans*, *Aſſyrians*, *Egyptians*, &c. And further argues from the ſhort Lives of moſt *Carnivorous* Animals, compar'd with Graſs-Feeders, and ruminating Kind; as the *Hart*, *Camel*, and the longævous *Elephant*, and other Feeders on Roots and Vegetables.

* *Theſaur. Sanit.* c. 2.

† *As* Dalecampius *interprets the Place.*

|| Scaliger *ad* Card. Exercit. 213.

I know what is pretended of our Bodies being compos'd of *Diſſimilar* Parts, and ſo requiring variety of Food. Nor do I reject the Opinion, keeping to the ſame *Species*; of which there is infinitely more Variety in the *Herby* Family, than in all Nature beſides: But the danger is in the *Generical* Difference of *Fleſh*, *Fiſh*, *Fruit*, &c. with other made Diſhes, and exotic Sauces; which a wanton and expenſive Luxury has introduc'd; debauching the Stomach, and ſharpening it to devour Things of ſuch difficult Concoction, with thoſe of more eaſy Digeſtion, and of contrary Subſtances, more than it can well diſpoſe of: Otherwiſe Food of the ſame Kind would do us little Hurt: So true is that of * *Celſus*, *Eduntur facilius*; *ad concoctionem autem materiæ, genus, & modus pertineat.* They are (ſays he) eaſily eaten and taken in: But regard ſhould be had to their Digeſtion, Nature, Quantity and Quality of the Matter. As to that of *Diſſimilar* Parts, requiring this contended for Variety: If we may judge by other Animals (as I know not why we may not) there is (after all the late Conteſts about *Comparative Anatomy*) ſo little difference in the Structure, as to the Uſe of thoſe Parts and Veſſels deſtin'd to ſerve the Offices of Concoction, Nutrition, and other Separations for Supply of Life, &c. that it does not appear why there ſhould need any difference at all of Food; of which the moſt ſimple has ever been eſteem'd the beſt and moſt wholſome, according to that of the † Naturaliſt, *Hominis cibus utiliſſimus ſimplex.* And that ſo it is in other Animals, we find by their being ſo ſeldom afflicted with

* *Cel.* Lib. Cap. 4.

† Plin. *Nat. Hiſt.* l. iii. c. 12.

with Men's Diſtempers, deriv'd from the Cauſes above-mention'd: And if the many Diſeaſes of *Horſes* ſeem to † contradict it, I am apt to think it much imputable to the Rack and Manger, the dry and wither'd Stable Commons, which they muſt eat or ſtarve, however qualify'd; being reſtrained from their natural and ſpontaneous Choice, which Nature and Inſtinct directs them to: To theſe add the cloſeneſs of the Air, ſtanding in an almoſt continu'd Poſture; beſides the fulſom Drenches, unſeaſonable Wat'rings, and other Practices of ignorant *Horſe-Quacks*, and ſurly Grooms: The Tyranny and cruel Uſage of their Maſters in tiring Journeys, hard labouring, and unmerciful Treatment, Heats, Colds, *&c.* which wear out and deſtroy ſo many of thoſe uſeful and generous Creatures before the time. Such as have been better us'd, and ſome, whom their more gentle and good-natur'd Patrons have in recompence of their long and faithful Service, diſmiſs'd, and ſent to Paſture for the reſt of their Lives (as the *Grand Signior* does his *Meccha-Camel*) have been known to live *Forty*, *Fifty*, nay (ſays || *Ariſtotle*) no fewer than *Sixty five* Years. When once Old *Par* came to change his ſimple homely Diet, to that of the *Court* and *Arundel-Houſe*, he quickly ſunk and dropp'd away: For, as we have ſhew'd, the Stomach eaſily concocts plain and familiar Food; but finds it a hard and difficult Task to vanquiſh and overcome Meats of * different Subſtances: Whence we ſo often ſee temperate and abſtemious Perſons, of a Collegiate Diet, very healthy; Husbandmen and laborious People, more robuſt, and longer liv'd, than others of an uncertain extravagant Diet.

† Hanc brevitatem Vitæ (*ſpeaking of Horſes*) fortaſſe homini debet. *Verul. Hiſt.* Vit. & Mort. *See this throughly controverted,* Macrob. *Saturn.* l. vii. c. 5.

|| Ariſt. *Hiſt. Animal.* lv. c. 14.

* ἀνόμοια σαρκίζει.

† Hor *Sat.* *l.* ii. *Sat.* ii. Macr. *Sat.* *l.* vii.

† —— *Nam variæ res*
Ut noceant Homini, credas, memor illius eſcæ,
Quæ ſimplex olim tibi ſederit. ——

For different Meats do hurt; remember how
When to one Diſh confin'd, thou healthier waſt than now;

was *Oſellus*'s *Memorandum* in the Poet.

Not that Variety (which God has certainly ordain'd to delight and aſſiſt our Appetite) is unneceſſary, nor any thing more grateful, refreſhing and proper for thoſe eſpecially who lead ſedentary and ſtudious Lives; Men of deep Thought, and ſuch as are otherwiſe diſturb'd with ſecular Cares and Buſineſſes, which hinders the Function of the Stomach and other Organs; whilſt thoſe who have their Minds free, uſe much Exerciſe, and are more active, create themſelves a natural Appetite, which needs little or no Variety to quicken and content it.

And here might we atteſt the *Patriarchal* World; nay, and many Perſons ſince, who living very temperately, came not much ſhort of the *Poſt-diluvians* themſelves, counting from *Abraham* to this Day; and ſome exceeding them, who liv'd in pure Air, a conſtant, tho' coarſe and ſimple Diet; wholſome and uncompounded Drink; that never taſted *Brandy* or *Exotic Spirits*, but us'd moderate Exerciſe, and obſerv'd good Hours: For ſuch a one a curious *Miſſionary* tells us of in *Perſia*, who had attain'd the Age of *Four hundred Years*, (a full *Century* beyond the famous *Johannes de temporibus*) and was living *Anno* 1636, and ſo may be ſtill for ought we know. But, to our *Sallet*.

Certain it is, Almighty God ordaining * *Herbs* and *Fruit* for the Food of Men, ſpeaks not a Word concerning *Fleſh* for Two thouſand Years. And when after, by the *Moſaic* Conſtitution, there were diſtinc-

* Gen. ix.

tions

ctions and Prohibitions about the legal Uncleanneſs of *Animals*; *Plants*, of what kind ſoever, were left free and indifferent for every one to chuſe what beſt he lik'd. And what if it was held undecent and unbecoming the Excellency of Man's Nature, before Sin entred, and grew enormouſly wicked, that any Creature ſhould be put to Death and Pain for him who had ſuch infinite Store of the moſt delicious and nouriſhing Fruit to delight, and the Tree of Life to ſuſtain him? Doubtleſs there was no need of it. Infants ſought the Mother's Nipple as ſoon as born; and when grown, and able to feed themſelves, run naturally to *Fruit*, and ſtill will chuſe to eat it rather than Fleſh; and certainly might ſo perſiſt to do, did not Cuſtom prevail, even againſt the very Dictates of Nature: Nor queſtion I, but that what the Heathen † *Poets* recount of the Happineſs of the *Golden Age*, ſprung from ſome Tradition they had received of the *Paradiſian* Fare, their innocent and healthful Lives in that delightful Garden. Let it ſuffice, that *Adam*, and his yet innocent Spouſe, fed on Vegetables, and other Hortulan Productions, before the fatal Lapſe; which, by the way, many Learned Men will hardly allow to have fallen out ſo ſoon as thoſe imagine, who ſcarcely grant them a ſingle Day, nay, nor half a one, for their Continuance in the State of Original Perfection; whilſt the ſending him into the Garden; Inſtructions how he ſhould keep and cultivate it; *Edict* and Prohibition concerning the *Sacramental* Trees; the Impoſition of * Names, ſo appoſite to the Nature of ſuch an Infinity of Living Creatures (requiring deep Inſpection;) the Formation of *Eve*, a meet Companion to relieve his Solitude; the Solemnity of their Marriage; the Dialogues and Succeſs of the crafty Tempter, whom we cannot reaſonably think made but one Aſſault; and that they ſhould ſo quickly forget the Injunction of their Maker and Benefactor; break their Faith and Faſt, and all other their Obligations, in ſo few Moments: I ſay, all theſe Particulars conſider'd, can it be ſuppoſed they were ſo ſoon tranſacted as thoſe do fancy, who take their Meaſure from the Summary *Moſes* gives us; who did not write to gratify Mens Curioſity, but to tranſmit what was neceſſary and ſufficient for us to know.

† Metam. 1. Fab. iii. & xv.

* Gen. xi. 19.

This then premis'd (as I ſee no reaſon why it ſhould not) and that during all this Space they liv'd on *Fruits* and *Sallets*; 'tis little probable, that after their Tranſgreſſion, and that they had forfeited their Dominion over the Creatures (and were ſentenc'd and exil'd to a Life of Sweat and Labour on a curſed and ungrateful Soil) the offended God ſhould regale them with pampering *Fleſh*, or ſo much as ſuffer them to ſlay the more innocent Animal: Or, that if at any time they had Permiſſion, it was for any thing ſave Skins to cloath them, or in way of Adoration, or *Holocauſt* for Expiation, of which nothing of the *Fleſh* was to be eaten. Nor did the Brutes themſelves ſubſiſt by Prey (tho' pleas'd perhaps with Hunting, without deſtroying their Fellow-Creatures) as may be preſum'd from their long Secluſion of the moſt Carnivorous among them in the Ark.

Thus then for Two thouſand Years, the Univerſal Food was *Herbs* and *Plants*; which abundantly recompens'd the want of *Fleſh* and other luxurious Meats, which ſhortned their Lives ſo many Hundred Years; the * μακροβιότητα of the Patriarchs, which was an Emblem of Eternity as it were (after the new Conceſſion) beginning to dwindle to a little Span, a Nothing in Compariſon. I know well what the late

* Gen. ix.

Claudius Freſſen, in his *Biblicæ Diſquiſitiones*, has ſaid upon this occaſion; however I ſtill adhere to the other Opinion.

On the other ſide, examine we the preſent Uſages of ſeveral other Heathen Nations; particularly (beſides the *Ægyptian* Prieſts of old) the *Indian Bramins*, Relicts of the ancient *Gymnoſophiſts*, to this Day obſerving the Inſtitutions of their Founder. *Fleſh*, we know, was baniſh'd the *Platonic* Tables, as well as from thoſe of *Pythagoras*; (See † *Porphyry* and their Diſciples) tho' on different Accounts. Among others of the Philoſophers, from *Xenocrates*, *Polemon*, &c. we hear of many. The like we find in || *Clement Alexand.* * *Euſebius* names more, *Zeno*, *Archinomus*, *Phraartes*, *Chiron*, and others, whom *Laertius* reckons up. In ſhort, ſo very many, eſpecially of the Chriſtian Profeſſion, that ſome, even of the ancient || Fathers themſelves, have almoſt thought that the Permiſſion of eating Fleſh to *Noah* and his Sons, was granted them no otherwiſe than *Repudiation* of Wives was to the *Jews*, namely, for *the hardneſs of their Hearts*, and to ſatisfy a murmuring Generation, that a little after loathed *Manna* it ſelf, and *Bread from Heaven*. So difficult a thing it is *circumſcribere gulam & ventrem*, to ſubdue an unruly Appetite; which notwithſtanding, * *Seneca* thinks not ſo hard a Task; where ſpeaking of the Philoſopher *Sextius*, and *Socion*'s (abhorring Cruelty and Intemperance) he celebrates the Advantages of the *Herby* and *Sallet* Diet, as *Phyſical*, and *Natural* Advancers of Health and other Bleſſings; whilſt Abſtinence from Fleſh deprives Men of nothing but what *Lions*, *Vultures*, Beaſts and Birds of Prey, blood and gorge themſelves withal. The whole *Epiſtle* deſerves the reading, for the excellent Advice he gives on this and other Subjects; and how from many troubleſome and ſlaviſh Impertinences, grown into Habit and Cuſtom (old as he was) he had emancipated and freed himſelf; and never would eat *Oyſters*, *Muſhroms*, &c. *Hæc enim non Cibi, ſed Oblectamenta ſunt*; not ſo much as allowing them the Name of Food: Be this apply'd to our preſent exceſſive Drinkers of Foreign and *Exotic* Liquors. And now

† *Porphyr.* de Abſtin. *Proclum, Jamblicum*, &c.
|| Strom. vii.
* Præp. Ev. paſſim.
|| Tertul. *de Jejun.* cap iv. Hieron. *adverſ.* Jovin.

* Sen. *Epiſt.* 108.

I am ſufficiently ſenſible how far, and to how little purpoſe I am gone on this *Topic*: The Ply is long ſince taken, and our raw *Sallet* deck'd in its beſt Trim, is never like to invite Men who once have taſted *Fleſh*, to quit and abdicate a Cuſtom which has now ſo long obtain'd. Nor truly do I think Conſcience at all concern'd in the matter, upon any account of diſtinction of *Pure* and *Impure*; tho' ſeriouſly conſider'd (as *Sextius* held) *rationi magis congrua*, as it regards the cruel Butcheries of ſo many harmleſs Creatures; ſome of which we put to mercileſs and needleſs Torment, to accommodate them for exquiſite and uncommon *Epicuriſm*. There lies elſe no poſitive Prohibition; Diſcrimination of Meats being * condemn'd as the *Doctrine of Devils*: Nor do Meats *commend us to God*. One eats *quid vult* (of every thing,) another *Olera*, and of *Sallets* only: But this is not my Buſineſs, further than to ſhew how poſſible it is by ſo many Inſtances and Examples, to live on wholſome Vegetables, both long and happily: For ſo

* 1 *Cor.* viii. 8. 1 *Tim.* iv. 1, 3, 14 *Rom.* ii. 3.

|| *Colci* Plaut. *Lib.* i. Lactuca.

|| *Has Eupulas habuit teneri gens aurea mundi,*
Et cœnæ ingentis tunc caput ipſa fui.
Semideumque meo creverunt corpora ſucco,
Materiam tanti ſanguinis ille dedit.

Tunc

Tunc neque fraus nota eſt, neque vis, neque fœda libido;
Hæc nimii proles ſæva caloris erat.
Sit ſacrum illorum, ſit deteſtabile nomen,
Qui primi ſervæ regna dedere gulæ.
Hinc vitiis patefacta via eſt, morbiſque ſecutis
Se lethi facies exeruere novæ,
Ah, fuge crudeles Animantum ſanguine menſas,
Quaſque tibi obſonat mors inimica dapes.
Poſcas tandem æger, ſi ſanus negligis, herbas.
Eſſe cibus nequeunt? at medicamen erunt.

The *Golden Age*, with this Proviſion bleſt,
Such a *Grand Sallet* made, and was a Feaſt.
The *Demi-Gods* with Bodies large and ſound,
Commended then the Product of the Ground.
Fraud then, nor Force were known, nor filthy Luſt,
Which over-heating and Intemp'rance nurs'd.
Be their vile Names in Execration held,
Who with foul Glutt'ny firſt the World defil'd:
Parent of Vice, and all Diſeaſes ſince,
With ghaſtly Death ſprung up alone from thence.
Ah, from ſuch reaking, bloody Tables fly,
Which Death for our Deſtruction does ſupply.
In *Health*, if *Sallet-Herbs* you can't endure;
Sick, you'll deſire them; or for *Food* or *Cure*.

As to the other part of the Controverſy which concerns us, αἱματοφάγοι and *Occidental Blood-Eaters*; ſome Grave and Learned Men of late ſeem to ſcruple the preſent Uſage, whilſt they ſee the Prohibition appearing, and to carry ſuch a Face of *Antiquity*, * *Scripture*, † *Councils*, ‖ *Canons*, ¶ *Fathers*, *Imperial Conſtitutions*, and *Univerſal Practice*, unleſs it be among us of theſe Tracts of *Europe*, whither, with other Barbarities, that of eating the *Blood* and *Animal* Life of Creatures firſt was brought; and by our Mixtures with the *Goths*, *Vandals*, and other Spawn of Pagan *Scythians*, grown a Cuſtom; and ſince which I am perſuaded more Blood has been ſhed between *Chriſtians*, than there ever was before the Water of the Flood covered this Corner of the World: Not that I impute it only to our eating *Blood*, but ſometimes wonder how it hapned that ſo ſtrict, ſo ſolemn and famous a *Sanction*, not upon a *Ceremonial* Account, but (as ſome affirm) a *Moral* and *Perpetual* from *Noah*, to whom the Conceſſion of eating *Fleſh* was granted, and that of Blood forbidden (nor to this Day once revok'd;) and whilſt there alſo ſeems to lie fairer Proofs than for moſt other Controverſies agitated among *Chriſtians*, ſhould be ſo generally forgotten, and give place to ſo many other impertinent Diſputes and Cavils about other ſuperſtitious Fopperies, which frequently end in Blood and cutting of Throats.

As to the Reaſon of this Prohibition, its favouring of Cruelty excepted, (and that by *Galen*, and other experienc'd Phyſicians, the eating Blood is condemn'd as unwholſome, cauſing Indigeſtion and Obſtructions) if a poſitive Command of *Almighty God* were not enough, it ſeems ſufficiently intimated; becauſe *Blood* was the *Vehicle* of the *Life* and *Animal Soul* of the Creature: For what other myſterious

* Gen. ix.
† Ancyra xiv.
‖ Can. Apoſt. 50.
¶ Clem. Pædag. *Lib.* II. *c.* I. *Vide* Prudent. *Hymn* χαθημερινῶν: Nos Oloris Coma, nos ſiliqua facta legumine multitudo paraveris innocuis Epulis.

Cauſe, as haply its being always dedicated to *Expiatory Sacrifices*, &c. it is not for us to enquire. 'Tis ſaid, that † *Juſtin Martyr* being asked, Why the *Chriſtians* of his time were permitted the eating *Fleſh*, and not the *Blood*? readily anſwer'd, That God might diſtinguiſh them from Beaſts, which eat them both together. 'Tis likewiſe urg'd, that by the *Apoſtolical Synod* (when the reſt of the *Jewiſh* Ceremonies and Types were aboliſh'd) this Prohibition was mention'd as a thing * *neceſſary*, and rank'd with *Idolatry*; which was not to be local or temporary; but univerſally enjoin'd to converted Strangers and *Proſelytes*, as well as *Jews*: Nor cou'd the Scandal of neglecting to obſerve it concern them alone, after ſo many Ages as it was and ſtill is in continual Uſe; and thoſe who tranſgreſs'd ſo ſeverely puniſh'd, as by an *Imperial Law* to be ſcourg'd to *Blood* and Bone. Indeed, ſo terrible was the Interdiction, that *Idolatry* excepted (which was alſo moral and perpetual) nothing in Scripture ſeems to be more expreſs. In the mean time, to relieve all other Scruples, it does not, they ſay, extend to that ἀκρίβεια of thoſe few diluted Drops of *Extravaſated Blood*, which might happen to tinge the Juice and *Gravy* of the Fleſh (which were indeed *to ſtrain at a Gnat*) but to thoſe who devour the *Venal* and *Arterial Blood* ſeparately, and in Quantity, as a choice Ingredient of their luxurious Preparations, and *Apician* Tables.

† Quæſt. & Reſp. ad Orthod. *Tho. Bartholinus* de Eſu Sanguinis.

* *Acts* xv. 20, 29.

But this, and all the reſt will, I fear, ſeem but *Oleribus verba facere*, and (as the Proverb goes) be Labour-in-vain to think of preaching down *Hogs-Puddings*, and uſurp the Chair of *Rabby-Buſy*: And therefore what is advanc'd in Countenance of the *Antediluvian* Diet, we leave to be ventilated by the Learned, and ſuch as *Curcellæus*, who has borrow'd of all the antient Fathers, from *Tertullian*, *Hierom*, St. *Chryſoſtom*, &c. to the later Doctors and Divines, *Lyra*, *Toſtatus*, *Dionyſius Carthuſianus*, *Pererius*, amongſt the *Pontificians*; of *Peter Martyr*, *Zanchy*, *Aretius*, *Jac. Capellus*, *Hiddiger*, *Cocceius*, *Bochartus*, &c. amongſt the *Proteſtants*; and *inſtar omnium*, by *Salmatius*, *Grotius*, *Voſſius*, *Blundel*: In a word, by the Learned of both Perſuaſions, favourable enough to theſe Opinions, *Cajetan* and *Calvin* only excepted, who hold, that as to *Abſtinence* from *Fleſh*, there was no poſitive Command or Impoſition concerning it; but that the Uſe of *Herbs* and *Fruit* was recommended rather for Temperance ſake, and the Prolongation of Life. Upon which ſcore I am inclin'd to believe, that the antient Θεραπευταί, and other devout and contemplative Sects, diſtinguiſh'd themſelves; whoſe Courſe of Life we have at large deſcrib'd in * *Philo*, (who liv'd and taught much in Gardens) with others of the abſtemious Chriſtians; among whom *Clemens* brings in St. *Mark* the *Evangeliſt* himſelf, *James* our Lord's Brother, St. *John*, &c. and with ſeveral of the devout Sex, the famous *Diaconeſs Olympias*, mention'd by *Palladius*, (not to name the reſt) who abſtaining from *Fleſh*, betook themſelves to *Herbs* and *Sallets* upon the account of Temperance, and the Virtues accompanying it; and concerning which the incomparable *Grotius* declares ingenuouſly his Opinion to be far from cenſuring, not only thoſe who forbear the eating *Fleſh* and *Blood*, *Experimenti Causâ*, and for Diſcipline ſake; but ſuch as forbear *ex Opinione*, (becauſe it has been the antient Cuſtom) provided they blam'd none who freely us'd their Liberty; and I think he's in the right.

* *Philo* de Vit. Contem. *Joſeph.* Antiq. *Lib.* xiii. *cap.* 9.

But

But leaving this Controverſy (*nè nimium extra oleas*) it has often been objected, That *Fruit* and *Plants*, and all other things, may, ſince the Beginning, and as the World grows older, have univerſally become *effæte*, impair'd and diveſted of thoſe nutritious and tranſcendent Virtues they were at firſt endow'd withal: But as this is begging the Queſtion, and to which we have already ſpoken; ſo all are not agreed that there is any, the leaſt † *Decay in Nature*, where equal Induſtry and Skill's apply'd. 'Tis true indeed, that the *Ordo Foliatorum*, *Feuillantines* (a late Order of *Aſcetic Nuns*) amongſt other Mortifications, made Trial upon the *Leaves* of *Plants* alone, to which they would needs confine themſelves; but were not able to go thro' that thin and meagre Diet: But then it would be enquir'd, whether they had not firſt, and from their very Childhood, been fed and brought up with *Fleſh*, and better Suſtenance, till they enter'd the Cloyſter; and what the Vegetables and the Preparation of them were allow'd by their Inſtitution? Wherefore this is nothing to our modern Uſe of *Sallets*, or its Diſparagement. In the mean time, that we ſtill think it not only poſſible, but likely, and with no great Art or Charge (taking *Roots* and *Fruit* into the Basket) ſubſtantially to maintain Mens Lives in Health and Vigor: For to *this*, and leſs than this, we have the Suffrage of the great * *Hippocrates* himſelf; who thinks, *ab initio etiam hominum* (as well as other Animals) *tali victu uſum eſſe*, and needed no other Food. Nor is it an inconſiderable Speculation, That ſince *all Fleſh is Graſs* (not in a *figurative*, but *natural* and *real* Senſe) *Man* himſelf, who lives on *Fleſh*, and I think upon no earthly Animal whatſoever but ſuch as feed on Graſs, is nouriſh'd with them ſtill; and ſo becoming an *incarnate Herb*, and innocent *Canibal*, may truly be ſaid to devour himſelf.

† *Hackwell*, Apolog.

* *Hippoc.* de vetere Medicina, *cap.* 6, 7.

We have ſaid nothing of the *Lotophagi*, and ſuch as (like St. *John* the *Baptiſt*, and other religious *Aſcetics*) were Feeders on the *Summities* and Tops of Plants: But as divers of thoſe, and others we have mention'd, were much in Times of Streights, Perſecutions, and other Circumſtances, which did not in the leaſt make it a Pretence, exempting them from Labour, and other human Offices, by enſnaring Obligations and *Vows*, (never to be uſeful to the Publick in whatever Exigency) ſo I cannot but take notice of what a learned || *Critic*, ſpeaking of Men's neglecting plain and eſſential Duties, under colour of exerciſing themſelves in a more ſublime courſe of Piety, and being righteous above what is commanded (as thoſe who ſeclude themſelves in *Monaſteries*) that they manifeſtly diſcover exceſſive Pride, Hatred of their Neighbour, Impatience of Injuries; to which add, *melancholy Plots* and *Machinations*; and that he muſt be either ſtupid, or infected with the ſame Vice himſelf, who admires this ἐθελοπεριοσοθρήσκεια, or thinks they were for that Cauſe the more pleaſing to God. This being ſo, what may we then think of ſuch Armies of *Hermits*, *Monks* and *Friars*, who pretending to juſtify a miſtaken Zeal and meritorious Abſtinence, not only by a peculiar Diet and Diſtinction of Meats (which God without Diſtinction has made the moderate Uſe of, common and * indifferent amongſt Chriſtians) but by other ſordid Uſages, and unneceſſary Hardſhips, wilfully prejudice their Health and Conſtitution? And through a ſingular manner of living, dark and *Saturnine*; whilſt they would ſeem to abdicate and forſake the World (in Imitation, as they pretend, of the antient *Eremites*) take care to ſettle and

|| L. C. *Annot. in* Coloſſ. c. 2.

* 2 Tim. iv. 3.

build their warm and ſtately Neſts in the moſt populous Cities, and Places of Reſort; ambitious, doubtleſs, of the Peoples Veneration and Opinion of an extraordinary Sanctity; and therefore flying the *Deſarts*, where there is indeed no Uſe of them; and flocking to the *Towns* and *Cities* where there is leſs, indeed none at all; and therefore no marvel that the Emperor *Valentinian* baniſh'd them the Cities, and *Conſtantine Copronimus* finding them ſeditious, oblig'd them to marry, to leave their Cells, and live as did others. For of theſe, ſome there are who ſeldom ſpeak, and therefore edify none; ſleep little, and lie hard, are clad naſtily, and eat meanly (and oftentimes that which is unwholſome) and therefore benefit none: Not becauſe they might not, both for their own, and the Good of others, and the Publick; but becauſe they will not; Cuſtom and a prodigious [a] Sloth accompanying it; which renders it ſo far from *Penance*, and the Mortification pretended, that they know not how to live, or ſpend their Time otherwiſe. This, as I have often conſider'd, ſo was I glad to find it juſtly perſtring'd, and taken notice of by a learned [b] Perſon amongſt others of his uſeful Remarks Abroad.

" Theſe, ſays he, willingly renouncing the innocent Comforts of " Life, plainly ſhew it to proceed more from a chagrin and moroſe " Humour, than from any true and ſerious Principle of ſound Religi- " on; which teaches Men to be uſeful in their Generations, ſociable " and communicative, unaffected, and by no means ſingular and fan- " taſtick in Garb and Habit, as are theſe (forſooth) *Fathers* (as " they affect to be call'd,) ſpending their Days in idle and fruitleſs Forms, and tedious Repetitions, and thereby thinking to merit the Reward of thoſe ancient and truly pious *Solitaries*, who, God knows, were driven from their Countries and Repoſe, by the Incurſions of barbarous Nations, (whilſt theſe have no ſuch Cauſe) and compell'd to Auſterities, not of their own chuſing and making, but the Publick Calamity; and to *labour* with their Hands for their own, and others, neceſſary Support, as well as with their *Prayers* and holy Lives, Examples to all the World: And ſome of theſe indeed (beſides the *Solitaries* of the *Thebaid*, who wrought for abundance of poor Chriſtians, ſick, and in Captivity) I might bring in, as ſuch who deſerve to have their Names preſerv'd; not for their rigorous Fare, and uncouth Diſguiſes; but for teaching that the Grace of Temperance and other Virtues, conſiſted in a chearful, innocent, and profitable Converſation; ſo far from giving the leaſt Encouragement to thoſe Millions of *idle Lubbers*, ſwarming about, and diffus'd over the *Superſtitious* Parts of *Chriſtendom*; that there are hardly left Men enough to plow, ſow, and cultivate the Countries (where thoſe *Vermin* nurture themſelves, and live upon the Labour of others) where this Devaſtation continues and prevails.

And now to recapitulate what other Prerogatives the *Hortulan Proviſion* has been celebrated for, beſides its Antiquity, Health and *Longævity* of the *Antediluvians*; that Temperance, Frugality, Leiſure, Eaſe, and innumerable other Virtues and Advantages, which accom-

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[a] *This with their prodigious Ignorance.* *See* Mab. des Etudes Monaſt. *Part.* ii. *c.* 17.

[b] *Dr.* Liſter's *Journey to* Paris. *See L'Apocalyps* de Meliton, *ou Revelation des Myſteres Cenobitiques.*

pany

pany it, are no leſs attributable to it. Let us hear our excellent *Botaniſt*, [c] Mr. *Ray*.

" The Uſe of Plants (ſays he) is all our Life long of that uni-
" verſal Importance and Concern, that we can neither live nor ſub-
" ſiſt in any Plenty with Decency or Conveniency, or be ſaid to live
" indeed at all without them: Whatſoever Food is neceſſary to ſuſtain
" us, whatſoever contributes to delight and refreſh us, are ſupply'd
" and brought forth out of that plentiful and abundant Store: And
" ah, how much more innocent, ſweet, and healthful, is a Table co-
" ver'd with theſe, than with all the reeking Fleſh of butcher'd and
" ſlaughter'd Animals! Certainly Man by Nature was never made to
" be a *Carnivorous* Creature; nor is he arm'd at all for Prey and Ra-
" pine, with gag'd and pointed Teeth, and crooked Claws, ſharp-
" ned to rend and tear: But with gentle Hands to gather Fruit and
" Vegetables, and with Teeth to chew and eat them: Nor do we ſo
" much as read the Uſe of *Fleſh* for Food, was at all permitted him,
" till after the univerſal Deluge, *&c.*

To this might we add that tranſporting Conſideration, becoming both our Veneration and Admiration of the infinitely wiſe and glorious Author of Nature, who has given to *Plants* ſuch aſtoniſhing Properties; ſuch fiery *Heat* in ſome to warm and cheriſh, ſuch *Coolneſs* in others to temper and refreſh, ſuch pinguid *Juice* to nouriſh and feed the Body, ſuch quickning *Acids* to compel the Appetite, and grateful *Vehicles* to court the Obedience of the Palate, ſuch *Vigor* to renew and ſupport our natural Strength, ſuch raviſhing Flavour and Perfumes to recreate and delight us: In ſhort, ſuch *ſpirituous* and *active* Force to animate and revive every Faculty and Part, to all the kinds of *Human*, and, I had almoſt ſaid, *Heavenly* Capacity too. What ſhall we add more? Our Gardens preſent us with them all; and whilſt the Shambles are cover'd with Gore and Stench, our *Sallets* eſcape the Inſults of the Summer *Fly*, purify and warm the Blood againſt Winter Rage: Nor wants there Variety in more abundance than any of the former Ages could ſhew.

Survey we their *Bills of Fare*, and Numbers of Courſes ſerv'd up by *Athenæus*, dreſs'd with all the Garniſh of *Nicander* and other *Grecian* Wits: What has the *Roman Grand Sallet* worth the naming? *Parat Convivium:* The Gueſts are nam'd indeed, and we are told,

[d] ——— *Varias, quas habet hortus opes?*

How richly the Garden's ſtor'd!

In quibus eſt Lactuca ſedens, & tonſile porrum,
Nec deeſt ructatrix Mentha, nec herba ſalax, &c.

A Goodly Sallet!

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[c] Plantarum uſus latiſſimè patet, & in omni vitæ parte occurrit, ſine illis lautè, ſine illis commodè non vivitur, ac nec vivitur omninò. Quæcunque ad victum neceſſaria ſunt, quæcunque ad delicias faciunt, è locupletiſſimo ſuo penu abunde ſubminiſtrant: Quantò ex eis menſa innocentior, mundior, ſalubrior, quam ex animalium cæde & Laniena! Homo certè naturâ animal carnivorum non eſt; nullis ad prædam & rapinam armis inſtructum; non dentibus exertis & ſerratis, non unguibus aduncis: Manus ad fructus colligendos dentes ad mandendos comparati; nec legimus ei ante diluvium carnes ad eſum conceſſas, &c. *Raii Hiſt. Plant. lib.* i. *cap.* 24.

[d] Mart. *lib.* x. *Epig.* 44.

Lettuce,

Lettuce, *Leeks*, *Mint*, *Rocket*, *Colewort-Tops*, with *Oyl* and *Eggs*, and ſuch an *Hotch-Pot* following (as the Cook in *Plautus* would deſervedly laugh at.) But how infinitely outdone in this Age of ours, by the Variety of ſo many rare *Edules* unknown to the Ancients, that there is no room for the Compariſon? And for Magnificence, let the *Sallet* dreſs'd by the Lady for an Entertainment made by *Jacobus Catſius* (deſcrib'd by the Poet [e] *Barlæus*) ſhew; not at all yet outdoing what we every Day almoſt find at our *Lord Mayor's Table*, and other great Perſons, Lovers of the Gardens; that ſort of elegant Cookery being capable of ſuch wonderful Variety, though not altogether wanting of old, if that be true which is related to us of [f] *Nicomedes* a certain King of *Bithynia*, whoſe Cook made him a *Pilchard* (a Fiſh he exeeedingly long'd for) of a well diſſembled *Turnip*, carv'd in its Shape, and dreſs'd with *Oyl*, *Salt*, and *Pepper*, that ſo deceiv'd, and yet pleas'd the Prince, that he commended it for the beſt Fiſh he had ever eaten. Such a σόφισμα, *Cibaria ſcitè apparata*, *Xenophon* ſays, purchas'd the Name of σοφιστής, to a skilful *Sallet-Dreſſer*. Nor does all this exeeed what every induſtrious *Gardiner* may innocently enjoy, as well as the greateſt Potentate on Earth.

Vitellius's *Table, to which every Day*
All Countries did a conſtant Tribute pay,
Could nothing more delicious afford
Then Nature's Liberality,
Help'd with a little Art and Induſtry,
Allows the meaneſt Gardiner's Board.
The wanton Taſte no Fiſh or Fowl can chuſe,
For which the Grape or Melon ſhe would loſe.
Tho' all th' Inhabitants of Sea and Air
Be liſted in the Glutton's Bill of Fare,
Yet ſtill the Sallet *and the* Fruit *we ſee*
Plac'd the third Story high in all her Luxury.

So the ſweet [g] *Poet*, whom I can never part with for his Love to this delicious Toil, and the Honour he has done me.

Verily, the infinite Plenty and Abundance with which the benign and bountiful Author of Nature has ſtor'd the whole Terreſtrial World, more with *Plants* and *Vegetables*, than with any other Proviſion whatſoever; and the Variety not only equal, but by far exceeding the Pleaſure and Delight of Taſte (above all the Art of the *Kitchen*, that ever [h] *Apicius* knew) ſeems loudly to call, and kindly invite all her living Inhabitants (none excepted) who are of gentle Nature, and moſt uſeful to the ſame *Hoſpitable* and Common-Board, which firſt ſhe furniſhed with *Plants* and *Fruit*, as to their natural and genuine Paſture; nay, and of the moſt wild and ſavage too, *ab origine*: As in *Paradiſe*, where, as the *Evangelical* [i] Prophet adumbrating the future Glory of the *Catholick Church*, (of which that happy *Garden* was the *Anti-type*) the *Wolf and the Lamb*, *the angry and furious*

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[e] Barl. *Eleg. lib.* iii. [f] Athen. Deip. *l.* i. [g] Cowley, *Garden. Stanz.* 6.
[h] *Hence in* Macrobius Sat. lib. vii. c. 5. *we find* Eupolis *the Comedian in his* Æges *bringing in Goats boaſting the Variety of their Food,* Βοσκόμεθ' ὕλης ἀπὸ παντοδαπῆς, ἐλάτης, &c. *After which follows a Banquet of innumerable Sorts.* [i] Iſa. lxv. 25.

Lion ſhould eat Graſs and Herbs together with the Ox. But after all, *latet anguis in herba*, there's a *Snake* in the Graſs; Luxury and Exceſs in our moſt innocent Fruitions. There was a Time indeed, when the Garden furniſh'd Entertainments for the moſt renown'd Heroes, virtuous and excellent Perſons; till the Blood-thirſty and Ambitious, over-running the Nations, by Murders and Rapine rifled the World, to tranſplant its Luxury to its new Miſtreſs, *Rome*. Thoſe whom heretofore [a] two Acres of Land would have ſatisfy'd, and plentifully maintain'd; had afterwards their very Kitchens almoſt as large as their firſt Territories: Nor was that enough: Entire [b] *Foreſts* and *Parks*, *Warrens* and *Fiſh-Ponds*, and ample *Lakes*, to furniſh their Tables, ſo as Men could not live by one another without Oppreſſion: Nay, and to ſhew how the beſt and moſt innocent Things may be perverted, they chang'd thoſe frugal and *inemptas Dapes* of their Anceſtors to that Height and Profuſion, that we read of [c] *Edicts* and *Sumptuary Laws*, enacted to reſtrain even the Pride and Exceſs of *Sallets*. Taſtes (ſays *Pliny*) were mingled, and one is forc'd to pleaſe and gratify another: Nay, Heaven and Earth are blended together; for one kind of Fruit *India* is ſummon'd; for another, *Ægypt*; *Crete*, *Cyrene*, and every Country in its Turn; nor abſtain Men from [d] *Poiſon* it ſelf, till they devour all. This is ſufficiently evident in *Herbarum Natura*, the Tribe of *Sallet-Herbs*. But ſo it was not when the *Peaſe-Field* ſpread a Table for the Conquerors of the World, and their Grounds were cultivated *Vomere laureato, & triumphali aratore:* The greateſt Princes took the *Spade* and the *Plough-Staff* in the ſame Hand they held the *Sceptre*; and the nobleſt [e] Families thought it no Diſhonour to derive their Names from *Plants* and *Sallet-Herbs:* They arriv'd, I ſay, to that pitch of ingroſſing all that was but green, and cou'd be vary'd by the Cook (*Heu quam prodiga ventris!*) that, as *Pliny* tells us (*non ſine pudore*, not without bluſhing) a poor Man could hardly find a *Thiſtle* to dreſs for his Supper; or what his hungry [f] *Aſs* would not touch, for fear of pricking his Lips.

Verily, the Luxury of the *Eaſt* ruin'd the greateſt Monarchies; firſt, the *Perſian*, then the *Grecian*, and afterwards *Rome* her ſelf; nor are we of the *Weſt* inexcuſable, whilſt we ſo ſtudiouſly mangle and diſguiſe the plain and wholſome Diet of our Fore-fathers, that 'tis almoſt impoſſible to tell by the Taſte what it is we eat: Add to this the *Quelques-choſes*, and other *Cupediæ*, that debauch the natural Appetite. By what Steps this wanton Exuberance ruin'd that once glorious Empire, ſee elegantly deſcrib'd in Old [g] *Gratius* the *Faliſcian*, deploring his own Age, compar'd with the former:

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[a] Bina tunc jugera populo Romano ſatis erat, nullíque majorem modum attribuit, quo ſervos paulo ante Principis Neronis, contemptis hujus ſpatii Viridariis, piſcinas juvat, habere majores, gratumque, ſi non aliquem & culinas. *Plin. Hiſt. Nat. lib.* xvii. *c.* 2.

[b] Interea guſtus elementa per omnia quærunt. *Juv. Sat.* 4.

[c] Cicero. *Epiſt.* Lib. vii. Ep. 26. *Complaining of a coſtly Sallet, that had almoſt coſt him his Life.*

[d] Nec ceſſat in veneficiis vita, & dummodo omnia devoret: Planius hoc fiet in Herbarum Natura. *Plin. H. Nat.* lib. xv. cap. 26.

[e] Valeriana, *That of* Lactucini, Achilleia, Lyſimachia, Fabius, Cicero, Lentuli, Piſo, &c. à Fabis, Cicero, Lente, Piſis, bene ſerendis dicti. *Plin.*

[f] Mirum eſſet non licere pecori Carduis veſci, non licet plebei, &c. *And in another Place,* Quoniam portenta quoque terrarum in ganeam vertimus, etiam quæ refugiunt quadrupedes conſciæ. *Plin.* Hiſt. Nat. lib. xix. cap. 8.

[g] Gra. Faliſc. *Cyneget.* Waſ. *See concerning this Exceſs,* Macr. *Sat. l.* 2. *c.* 9. & ſeq.

O quantum, & quoties decoris fruſtrata paterni!
At qualis noſtris, quam ſimplex menſa Camillis!
Qui tibi cultus erat poſt, tot Serrane triumphos?
Ergo illi ex habitu, virtutiſque indole priſcæ,
Impoſuere orbi Romam caput: ———

Neighb'ring Exceſſes being made thine own,
How art thou fallen from thine old Renown!
But our *Camilli* did but plainly fare,
No Port did oft triumphant *Serran* bear:
Therefore ſuch Hardſhip, and their Heart ſo great,
Gave *Rome* to be the World's Imperial Seat.

But as theſe were the Senſual and Voluptuous, who abus'd their Plenty, ſpent their Fortunes and ſhortned their Lives by their Debauches; ſo never did they taſte the Delicacies, and true Satisfaction of a ſober Repaſt, and the infinite Conveniences of what a well-ſtor'd *Garden* affords; ſo elegantly deſcrib'd by the [a] *Naturaliſt*, as coſting neither Fuel nor Fire to boil, Pains or Time to gather and prepare, *Res expedita & parata ſemper:* All was ſo near at Hand, readily dreſs'd, and of ſo eaſy Digeſtion, as neither to offend the Brain, or dull the Senſes; and in the greateſt Dearth of Corn, a little Bread ſuffic'd. In all Events,

[b] *Panis ematur, Olus, Vini Sextarius; adde,*
Queis humana ſibi doleat natura negatis.

Bread, Wine, and wholſome Sallet you may buy:
What Nature adds beſides is Luxury.

They could then make an honeſt Meal, and dine upon a *Sallet*, without ſo much as a Grain of *Exotic Spice*; and the *Potagere* was in ſuch Reputation, [c] that ſhe who neglected her *Kitchen-Garden* (for that was ſtill the Good-Woman's Province) was never reputed a tolerable Houſewife: *Si veſpertinus ſubitò te oppreſſerit hoſpes*, ſhe was never ſurpriz'd, had all (as we ſaid) at Hand, and could in a Trice ſet forth an handſome *Sallet*: [d] A Dinner of *Herbs* where Love is, how preferable to a ſtall'd Ox! And if this was Happineſs, *Convictus facilis ſine arte Menſa*, (as the *Poet* reckons it) and the innocent [e] Cup went merrily round; it was here in Perfection. In a word, ſo univerſal was the *Sallet*, that the Unbloody Shambles (as *Pliny* calls them) yeilded the [f] *Roman* State a more conſiderable Cuſtom (when there was little more than honeſt *Cabbage* and *Worts*) than almoſt any thing beſides brought to Market. 2

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[a] Horti maximè placebant, quia non egerent igni, parceréntque ligno, expedita res, & parata ſemper, unde *Acetaria* appellantur, facilia concoqui, nec oneratura ſenſum cibo, & quæ minimè accenderent deſiderium panis. *Plin. Hiſt. Nat. lib.* xix. *c.* 4. *And of this exceeding Frugality of the* Romans, *till after the* Mithridatick *War, ſee* Athenæus Deip. *lib.* vi. *cap.* 21.

[b] Horat. *Sat. l.* i. *Sat.* 1.

[c] Nequam eſſe in domo matrem familias (etenim hæc cura Fœminæ dicebatur) ubi indiligens eſſet hortus.

[d] Prov. xv. 17.

[e] Et priſco more bibantur aquæ. Caulibus & pomis & aperto viveret horto. *Tibul.* l. ii. El. 3. *Juv.* Sat. 6.

[f] Alterum ſuccidium. *Cic.* in *Catone.* Tiberius *had a Tribute of* Skirrits *paid him.*

They

They ſpent not then ſo much precious Time as afterwards they did, gorging themſelves with *Fleſh* and *Fiſh*, ſo as hardly able to riſe, without reeking and reeling from Table.

g ——————*Vides ut pallidus omnis*
Cæna deſurgat dubia? quin corpus onuſtum
Heſternis vitiis animum quoque prægravat unà,
Atque affigit humo divinæ particulam auræ.

See but how pale they look, how wretchedly
With Yeſterday's Surcharge diſturb'd they be!
Nor Body only ſuff'ring, but the Mind,
That nobler Part, dull'd and depreſs'd we find:

Drowſy and unapt for Buſineſs, and other nobler Parts of Life.

Time was before Men in thoſe golden Days: Their Spirits were brisk and lively.

——————*Ubi dicto citius curata ſopori*
Membra dedit, Vegetus præſcripta ad munera ſurgit.

With ſhorter, but much ſweeter Sleep, content,
Vigorous and freſh, about their Buſineſs went.

And Men had their Wits about them; their Appetites were natural, their Sleep *molli ſub arbore*, ſound, ſweet, and kindly: That excellent Emperor *Tacitus* being us'd to ſay of *Lettuce*, that he did *ſomnum ſe mercari* when he eat of them, and call'd it a ſumptuous Feaſt, with a *Sallet* and a ſingle *Pullet*, which was uſually all the Fleſh-Meat that ſober Prince eat of; whilſt *Maximinus* (a profeſs'd Enemy to *Sallet*) is reported to have ſcarce been ſatisfy'd with Sixty Pounds of *Fleſh*, and Drink proportionable.

There was then alſo far leſs expenſive Grandeur, but far more true State; when *Conſuls*, great Stateſmen, and ſuch as atchiev'd the moſt renown'd Actions, ſupp'd in their *Gardens*; not under coſtly, gilded, and inlaid Roofs, but the ſpreading *Platan*; and drank of the Cryſtal Brook, and by Temperance, and healthy Frugality, maintain'd the Glory of *Sallets*, *Ah, quanto innocentiore victu!* with what Content and Satisfaction! Nor, as we ſaid, wanted there Variety; for ſo in the moſt bliſsful Place, and innocent State of Nature, ſee how the firſt *Empreſs* of the *World regales* her *Celeſtial* Gueſt:

h *With ſav'ry Fruit of Taſte to pleaſe*
True Appetite, ——*and brings*
Whatever Earth's all-bearing Mother yields,
——*Fruit of all Kinds, in Coat*
Rough, or ſmooth-Rind, or bearded Husk, or Shell,
Heaps with unſparing Hand: For Drink the Grape
She cruſhes, inoffenſive Mouſt and Meathes
From many a Berry, and from ſweet Kernel preſt,
She temper'd dulcid Creams.——

Then for the Board:

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g Hor. *Sat.* ii. *l.* ii. Vix præ vino ſuſtinet palpebras, eunti in conſilium, &c. *See the Oration of C. Titius* de Leg. Fan. Mac. *Sat. l.* ii. *c.* 12.

h Milton's *Paradiſe*, l. v. ver. 228.

—*Rais'd*

——————Rais'd of the graſſy Turf
The Table was, and Moſſy Seats had round;
And on the ample Square from Side to Side
All Autumn pil'd: Ah Innocence,
Deſerving Paradiſe!

Thus the *Hortulan* Proviſion of the [i] *Golden Age* fitted all *Places*, *Times*, and *Perſons*; and when Man is reſtor'd to that State again, it will be as it was in the Beginning.

But now after all (and for cloſe of all) let none yet imagine, that whilſt we juſtify our preſent Subject through all the *Topicks* of *Panegyrick*, we would, in favour of the *Sallet*, dreſs'd with all its Pomp and Advantage, turn Mankind to *Graſs* again; which were ungratefully to neglect the Bounty of Heaven, as well as his Health and Comfort: But by theſe noble Inſtances and Examples, reproach the *Luxury* of the preſent Age; by ſhewing the infinite Bleſſing and Effects of Temperance, and the Virtues accompanying it; with how little Nature, and a [k] civil Appetite may be happy, contented with moderate Things, and within a little Compaſs, reſerving the reſt to the nobler Parts of Life. And thus of Old,

[k] Bene moratus venter.

Hoc erat in votis, modus agri non ita magnus, &c.

He that was poſſeſs'd of a little Spot of Ground, and well-cultivated *Garden*, with other moderate Circumſtances, had [l] *Hæredium:* All that a modeſt Man could well deſire. Then,

[l] TAB. II.

[m] *Fælix, quem miſerâ procul ambitione remotum,*
Parvus ager placidè, parvus & hortus, alit.
Præbet ager quicquid frugi natura requirit,
Hortus habet quicquid luxurioſa petit,
Cætera ſollicitæ ſpecioſa incommoda vitæ
Permittit ſtultis quærere, habere malis.

[m] *Cowley*, Pl. lib. iv.

Happy the Man, whom from Ambition freed,
A little Garden, little Field, does feed.
The Field gives frugal Nature what's requir'd;
The Garden, what's luxuriouſly deſir'd:
The ſpecious Evils of an anxious Life,
He leaves to Fools to be their endleſs Strife.

O fortunatos nimium bona ſi ſua nôrint
Horticolas!

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[i] At vetus illa ætas cui fecimus aurea nomen.
Fructibus arboreis, & quas humus educat herbis.
Fortunata fuit. ——— *Met.* xv.

APPEN-

APPENDIX.

THO' it was far from our firſt Intention to charge this ſmall Volume and Diſcourſe concerning *Crude Sallets*, with any of the following Receipts: Yet having ſince received them from an *Experienc'd Houſe-wife*; and that they may poſſibly be uſeful to correct, preſerve and improve our *Acetaria*, we have allow'd them Place as an *Appendant* Variety upon Occaſion: Nor account we it the leaſt Diſhonour to our former Treatiſe, that we kindly entertain'd them; ſince (beſides divers Learned *Phyſicians*, and ſuch as have *ex profeſſo* written *de re Cibaria*) we have the Examples of many other * *Noble* and *Illuſtrious* Perſons, both among the *Ancient* and *Modern*.

* Plin. Athenæus, Macrobius. Bacon, Boyle, Digby, &c.

1. *Artichoak.* Clear it of the Leaves, and cut the Bottoms in pretty thin Slices or Quarters; then fry them in freſh Butter, with ſome Parſley, till it is criſp, and the Slices tender; and ſo diſh them with other freſh melted Butter.

How a *Poiverade* is made, and the Bottoms preſerv'd all the Winter, See *Acetaria*, p. 122, 123.

Aſhen-Keys.
Aſparagus.
Beets.
Broom.
Buds.
Capers.
} See *Pickle.*

Carrot, See *Pudding.*

Champignon, See *Muſhrom.*

2. *Cheſſnut.* Roaſted under the Embers, or dry-fry'd, till they ſhell, and quit their Husks, may be ſlit; the Juice of Orange ſqueezed on a lump of hard Sugar diſſolv'd; to which add ſome Claret-Wine.

Cauly-Flower,
Cucumber,
Elder Flowers,
Flowers,
July-Flowers,
} See *Pickle.*

Herbs, See *Pudding* and *Tart.*

Limon, See *Pickle.*

3. *Muſhrom.* Chuſe the ſmall, firm, and white Buttons, *growing* upon ſweet Paſture Grounds, neither under, or about any Trees: Strip off the upper Skin, and pare away all the black ſpungy Bottom part; then ſlice them in Quarters, and caſt them in Water a while to cleanſe: Then boil them in freſh Water, and a little ſweet Butter; (ſome boil them a quarter of an Hour firſt) and then taking them out, dry them in a Cloth, preſſing out the Water, and, whilſt hot add the Butter; and then boiling a full Hour (to exhauſt the Malignity) ſhift them in another clean Water, with Butter, as before, till they become ſufficiently tender. Then being taken out, pour upon them

them as much ſtrong Mutton (or other) Broth as will cover them, with ſix Spoonfuls of White-Wine, twelve Cloves, as many Pepper-Corns, four ſmall young Onions, half an Handful of *Parſley* bound up with two or three Sprigs of *Thyme*, an *Anchovy*, *Oyſters* raw or pickl'd; a little *Salt*, *Sweet-Butter*; and ſo let them ſtew. See *Acetar.* p. 131.

Another.

Prepar'd, and cleans'd as above, and caſt into Fountain-Water, to preſerve them from growing black, boil them in freſh Water and Salt; and whilſt on the Fire, caſt in the *Muſhroms*, letting them boil till they become tender: Then ſtew them leiſurely between two Diſhes (the Water being drained from them) in a third Part of White-Wine and Butter, a ſmall bundle of Sweet-Herbs at diſcretion. To theſe add Broth as before, with Cloves, Mace, Nutmeg, *Anchovies* (one is ſufficient) Oyſters, *&c.* a ſmall Onion, with the green Stem chopp'd ſmall; and laſtly, ſome Mutton-Gravy, rubbing the Diſh gently with a Clove of Garlick, or ſome *Roccombo* Seeds in its ſtead. Some beat the Yolk of a freſh Egg with Vinegar and Butter, and a little Pepper.

In *France* ſome (more compendiouſly being peel'd and prepar'd) caſt them into a Pipkin, where, with the Sweet-Herbs, Spice, and an Onion, they ſtew them in their own Juice, without any other Water or Liquor at all; and then taking out the Herbs and Onion, thicken it with a little Butter, and ſo eat them.

In *Poiverade.*

The large *Muſhroms* well cleans'd, *&c.* being cut into Quarters, and ſtrew'd with Pepper and Salt, are broil'd on the Grid-Iron, and eaten with Freſh-Butter.

In *Powder.*

Being freſh gather'd, cleans'd, *&c.* and cut in Pieces, ſtew them in Water and Salt; and being taken forth, dry them with a Cloth: Then putting them into an Earth-Glaz'd Pot, ſet them into the Oven after the Bread is drawn: Repeat this till they are perfectly dry; and reſerve them in Papers, to crumble into what Sauce you pleaſe. For the reſt, See *Pickle.*

4. *Muſtard.* Procure the beſt and weightieſt Seed: Caſt it into Water two or three times, till no more of the Husk ariſe: Then taking out the ſound (which will ſink to the bottom) rub it very dry in warm coarſe Cloths, ſhewing it alſo a little to the Fire in a Diſh or Pan. Then ſtamp it as ſmall as to paſs thro' a fine Tiffany Sieve: Then ſlice ſome Horſe-Radiſh, and lay it to ſoak in ſtrong Vinegar, with a ſmall lump of hard Sugar (which ſome leave out) to temper the Flower with, being drained from the Radiſh, and ſo pot it all in a glaz'd Mug, with an Onion, and keep it well ſtopp'd with a Cork upon a Bladder, which is the more cleanly: But this *Receipt* is improv'd, if, inſtead of Vinegar, Water only, or the Broth of powder'd Beef, be made uſe of. And to ſome of this *Muſtard* adding Verjuice, Sugar, Claret-Wine, and Juice of Limon, you have an excellent Sauce to any ſort of Fleſh or Fiſh.

Note,

Note, That a Pint of good Seed is enough to make at one time, and to keep freſh a competent while. What part of it does not paſs the *Sarſe*, may be beaten again; and you may reſerve the Flower in a well clos'd Glaſs, and make freſh Muſtard when you pleaſe. See *Acetaria*, p. 133, 148.

Naſturtium, Vide *Pickle*.

Orange, See *Limon* in Pickle.

5. *Parſnip*. Take the large Roots, boil them, and ſtrip the Skin: Then ſlit them long-ways into pretty thin Slices; Flower and fry them in Freſh-Butter till they look brown. The Sauce is other Sweet-Butter melted. Some ſtrow Sugar and Cinamon upon them. Thus you may accommodate other Roots.

There is made a Maſh or Pomate of this Root, being boil'd very tender, with a little freſh Cream; and being heated again, put to it ſome Butter, a little Sugar and Juice of Limon; diſh it upon Sippets; ſometimes a few *Corinths* are added.

Penny-royal, See *Pudding*.

PICKLES.

6. *Artichoaks*, See *Acetaria*, p. 123.

7. *Aſhen-keys*. Gather them young, and boil them in three or four Waters to extract the bitterneſs; and when they feel tender, prepare a Syrup of ſharp White-wine Vinegar, Sugar, and a little Water. Then boil them on a very quick Fire, and they will become of a green Colour fit to be potted ſo ſoon as cold.

8. *Aſparagus*. Break off the hard Ends, and put them in White-wine Vinegar, and Salt, well cover'd with it; and ſo let them remain for Six weeks: Then taking them out, boil the Liquor or Pickle, and ſcum it carefully. If need be, renew the Vinegar and Salt; and when 'tis cold, pot them up again. Thus may one keep them the whole Year.

9. *Beans*. Take ſuch as are freſh, young, and approaching their full growth. Put them into a ſtrong Brine of White-wine Vinegar and Salt able to bear an Egg. Cover them very cloſe, and ſo will they be preſerved Twelve Months: But a Month before you uſe them, take out what Quantity you think ſufficient for your ſpending a Quarter of a Year, (for ſo long the ſecond Pickle will keep them ſound) and boil them in a Skillet of freſh Water, till they begin to look green, as they ſoon will do. Then placing them one by one (to drain upon a clean courſe Napkin) range them row by row in a *Jarr*, and cover them with Vinegar, and what Spice you pleaſe; ſome Weight being laid upon them to keep them under the Pickle. Thus you may preſerve *French-Beans*, *Harico*'s, &c. the whole Year about.

10. *Broom-Buds* and *Pods*. Make a ſtrong Pickle, as above; ſtir it very well, till the Salt be quite diſſolv'd, clearing off the Dregs and Scum. The next Day pour it from the bottom; and having rubbed the Buds dry, pot them up in a Pickle-Glaſs, which ſhould be frequently ſhaken, till they ſink under it, and keep it well ſtopp'd and cover'd.

Thus may you pickle any other *Buds*. Or as follows:

11. Of *Elder*. Take the largeſt *Buds*, and boil them in a Skillet with Salt and Water, ſufficient only to ſcald them; and ſo (being taken

ken off the Fire) let them remain cover'd till green; and then pot them with Vinegar and Salt, which has had one Boil up to cleanſe it.

12. *Caulyflowers.* Boil them till they fall in Pieces: Then with ſome of the Stalk, and worſt of the Flower, boil it in a part of the Liquor till pretty ſtrong: Then being taken off, ſtrain it; and when ſettled, clear it from the bottom. Then with *Dill*, groſs Pepper, a pretty Quantity of Salt, when cold, add as much Vinegar as will make it ſharp, and pour all upon the *Caulyflower*; and ſo as to keep them from touching one another; which is prevented by putting Paper cloſe to them.

Cornelians are pickl'd like *Olives.*

13. *Cowſlips.* Pick'd very clean; to each Pound of Flowers allow about one Pound of Loaf-Sugar, and one Pint of White-wine Vinegar, which boil to a Syrup, and cover it ſcalding hot. Thus you may pickle *Clove-July-Flowers*, *Elder*, and other Flowers, which being eaten alone, make a very agreeable Salletine.

Note, *That the* Cucumbers *and the* Gorkems *are not to be boil'd in either of the Vinegars, but poured ſcalding hot upon them.*

14. *Cucumbers.* Take the *Gorkems*, or ſmaller *Cucumbers*; put them into *Rape-Vinegar*, and boil, and cover them ſo cloſe, as none of the Vapour may iſſue forth; and alſo let them ſtand till the next Day, or longer: Then boil them in freſh White-wine Vinegar, with large Mace, Nutmeg, Ginger, White Pepper, and a little Salt, (according to diſcretion) ſtraining the former Liquor from the *Cucumbers*; and ſo place them in a Jarr, or wide-mouth'd Glaſs, laying a little Dill and Fennel between each rank; and covering all with the freſh ſcalding-hot Pickle, keep all cloſe, and repeat it daily, till you find them ſufficiently green.

In the ſame ſort *Cucumbers* of the largeſt ſize, being peel'd and cut into thin Slices, are very delicate.

Another.

Wiping them clean, put them into a very ſtrong Brine of Water and Salt, to ſoak two or three Hours, or longer, if you ſee cauſe: Then range them in the *Jarr*, or *Barellet* with Herbs and Spice as uſual; and cover them with hot Liquor, made of two Parts Beer-Vinegar, and one of White-wine Vinegar: let all be very well clos'd. A Fortnight after ſcald the Pickle again, and repeat it as above: Thus they will keep longer, and from being ſo ſoon ſharp, eat crimp, and well taſted, tho' not altogether ſo green. You may add a Walnut-Leaf, Hyſop, Coſt-mary, *&c.* and as ſome do, ſtrow on them a little Powder of *Roch-Allom*, which makes them firm and eatable within a Month or Six Weeks after.

Mango of *Cucumbers.*

Take the biggeſt *Cucumbers* (and moſt of the *Mango* ſize) that look green: Open them on the Top or Side; and ſcooping out the Seeds, ſupply their Place with a ſmall Clove of Garlick, or ſome *Roccombo* Seeds. Then put them into an earthen-glaz'd Jar, or wide-mouth'd Glaſs, with as much White-Wine Vinegar as will cover them. Boil them in the Vinegar with Pepper, Cloves, Mace, *&c.* and when off the Fire, as much Salt as will make a gentle Brine; and ſo pour all boiling-hot on the *Cucumbers*, covering them cloſe till the next Day. Then put them with a little Dill and Pickle into a large Skillet; and giving them a Boil or two, return them into the Veſſel again: And

when all is cold, add a good Spoonful of the beſt *Muſtard*, keeping it from the Air; and ſo have you an excellent *Mango*. When you have occaſion to take any out, make uſe of a Spoon, and not your Fingers.

Elder, ſee *Buds*.

Flowers, ſee *Cowſlips*, and for other *Flowers*.

15. *Limon*. Take Slices of the thick Rind Limon, boil and ſhift them in ſeveral Waters, till they are pretty tender: Then drain and wipe them dry with a clean Cloth; and make a Pickle with a little White-Wine Vinegar, one Part to two of fair Water, and a little Sugar, carefully ſcumm'd. When all is cold, pour it on the peel'd Rind, and cover it all cloſe in a convenient Glaſs Jar. Some make a Syrup of Vinegar, White-Wine and Sugar, not too thick, and pour it on hot.

16. *Melon*. The abortive and after-Fruit of Melons being pickl'd as *Cucumber*, make an excellent Sallet.

17. *Muſhrom*. Take a Quart of the beſt White-Wine Vinegar; as much of White-Wine, Cloves, Mace, Nutmeg a pretty Quantity, beaten together: Let the Spice boil therein to the Conſumption of half; then taken off, and being cold, pour the Liquor on the *Muſhroms*; but leave out the boiled Spice, and caſt in of the ſame ſort of Spice whole, the Nutmeg only ſlit in quarters, with ſome Limon-Peel, White Pepper; and, if you pleaſe, a whole raw Onion, which take out again when it begins to periſh.

Another.

The *Muſhroms* peel'd, *&c.* throw them into Water, and then into a Saucepan, with ſome long Pepper, Cloves, Mace, a quarter'd Nutmeg, with an Onion, Shallot, or Roccombo-Seed, and a little Salt. Let them all boil a quarter of an Hour on a very quick Fire: Then take out, and cold, with a pretty Quantity of the former Spice, boil them in ſome White-Wine; which (being cold) caſt upon the *Muſhroms*, and fill up the Pot with the beſt White-Wine, a Bay-Leaf or two, and an Handful Salt: Then cover them with the Liquor; and if for long keeping, pour Sallet-Oyl over all, tho' they will be preſerv'd a Year without it.

They are ſometimes boil'd in Salt and Water, with ſome Milk, and laying them in the Cullender to drain till cold; and wip'd dry, caſt them into the Pickle with the White-Wine, Vinegar and Salt, grated Nutmeg, Ginger bruiſed, Cloves, Mace, White-Pepper, and Limon-Peel: Pour the Liquor on them cold without boiling. And when all this Coſt is beſtow'd upon them, take my Advice, and *fling them away*. Malignant, exitial, mortal, and deleterious, *qualicunque ſit apparatus inſtructu*. Athanaſ. Kircher de Peſte.

18. *Naſturtium Indicum*. Gather the Buds before they open to flower; lay them in the Shade three or four Hours, and putting them into an earthen-glaz'd Veſſel, pour good Vinegar on them, and cover it with a Board. Thus letting it ſtand for eight or ten Days: Then being taken out, and gently preſs'd, caſt them into freſh Vinegar, and let them ſo remain as before. Repeat this a third time, and barrel them up with Vinegar and a little Salt.

Orange, ſee *Limon*.

20. *Potato*. The ſmall green Fruit (when about the ſize of the wild Cherry) being pickl'd, is an agreeable Sallet. But the Root be-

ing roaſted under the Embers, or otherwiſe, open'd with a Knife, the Pulp is butter'd in the Skin, of which it will take up a good quantity, and is ſeaſon'd with a little Salt and Pepper. Some eat them with Sugar together in the Skin, which has a pleaſant Crimpneſs. They are alſo ſtew'd and bak'd in Pies, *&c.*

21. *Purſelan.* Lay the Stalks in an earthen Pan; then cover them with Beer-Vinegar and Water, keeping them down with a competent Weight, to imbibe, three Days: Being taken out, put them into a Pot with as much White-Wine Vinegar as will cover them again; and cloſe the Lid with Paſte, to keep in the Steam: Then ſet them on the Fire for three or four Hours, often ſhaking and ſtirring them: Then open the Cover, and turn and remove thoſe Stalks which lie at the bottom to the top, and boil them as before, till they are all of a Colour. When all is cold, pot them with freſh White-Wine Vinegar, and ſo you may preſerve them the whole Year round.

22. *Radiſh.* The Seed-Pods of this Root being pickl'd, are a pretty Sallet.

23. *Sampier.* Let it be gather'd about *Michaelmas* (or the *Spring*) and put two or three Hours into a Brine of Water and Salt; then into a clean tinn'd Braſs Pot, with three Parts of ſtrong White-Wine Vinegar, and one Part of Water and Salt, or as much as will cover the *Sampier*, keeping the Vapour from iſſuing out, by paſting down the Pot-lid, and ſo hang it over the Fire for half an Hour only. Being taken off, let it remain cover'd till it be cold; and then put it up into ſmall *Barrels* and *Jars*, with the Liquor, and ſome freſh Vinegar, Water, and Salt; and thus it will keep very green. If you be near the Sea, that Water will ſupply the Place of Brine. This is the *Dover* Receipt.

24. *Walnuts.* Gather the Nuts young, before they begin to harden, but not before the Kernel is pretty white: Steep them in as much Water as will more than cover them. Then ſet them on the Fire, and when the Water boils, and grows black, pour it off, and ſupply it with freſh, boiling it as before, and continuing to ſhift it till it become clear, and the *Nuts* pretty tender: Then let them be put into clean Spring-Water for two Days, changing it as before with freſh, two or three times within this ſpace: Then lay them to drain and dry on a clean coarſe Cloth, and put them up in a Glaſs Jar, with a few Walnut-Leaves, Dill, Cloves, Pepper, whole Mace and Salt; ſtrewing them under every Layer of Nuts, till the *Veſſel* be three quarters full; and laſtly, repleniſhing it with the beſt *Vinegar*, keep it well covered; and ſo they will be fit to ſpend within three Months.

To make a Mango *with them.*

The green Nuts prepared as before, cover the bottom of the Jar with ſome Dill, an Handful of Bay-Salt, *&c.* and then a Bed of Nuts; and ſo *ſtratum* upon *ſtratum*, as above, adding to the Spice ſome *Roccombo-Seeds*; and filling the reſt of the Jar with the beſt White-Wine *Vinegar*, mingled with the beſt Muſtard; and ſo let them remain cloſe cover'd, during two or three Months time: And thus have you a more agreeable *Mango* than what is brought us from Abroad; which you may uſe in any Sauce, and is of itſelf a rich Condiment.

Thus far *Pickles*.

25. *Potage Maigre.* Take four Quarts of Spring-Water, two or three Onions ſtuck with ſome Cloves, two or three Slices of Limon-Peel, Salt, whole White-Pepper, Mace, a Race or two of Ginger ty'd up in a fine Cloth (Lawn or Tiffany) and make all boil for half an Hour: Then having Spinage, Sorrel, white Beet-Chard, a little Cabbage, a few ſmall Tops of Cives, waſh'd and pick'd clean, ſhred them well, and caſt them into the Liquor, with a Pint of blüe Peaſe boil'd ſoft and ſtrain'd, with a Bunch of Sweet-Herbs, the top and bottom of a *French Roll*; and ſo ſuffer it to boil during three Hours; and then diſh it with another ſmall *French Roll*, and Slices about the Diſh: Some cut Bread in Slices, and frying them brown (being dry'd) put them into the Pottage juſt as it is going to be eaten.

The ſame Herbs clean waſh'd, broken and pull'd aſunder only, being put in a cloſe cover'd Pipkin, without any other Water or Liquor, will ſtew in their own Juice and Moiſture. Some add an whole Onion, which after a while ſhould be taken out, remembring to ſeaſon it with Salt and Spice, and ſerve it up with Bread and a Piece of freſh Butter.

26. *Pudding* of *Carrot.* Pare off the Cruſt and tougher Part of two Penny White-Loaves, grating the reſt, as alſo half as much of the Root: Then take a Pint of freſh Cream or new Milk, half a Pound of freſh Butter, ſix new-laid Eggs (taking out three of the Whites) maſh and mingle them well with the Cream and Butter: Then put in the grated Bread and Carrot, with near half a Pound of Sugar, and a little Salt, ſome grated Nutmeg and beaten Spice; and pour all into a convenient Diſh or Pan butter'd, to keep the Ingredients from ſticking and burning; ſet it in a quick Oven for about an Hour, and ſo have you a Compoſition for any *Root-Pudding*.

27. *Penny-royal.* The Cream, Eggs, Spice, *&c.* as above, but not ſo much Sugar and Salt: Take a pretty quantity of Penny-royal and Marigold Flowers, *&c.* very well ſhred, and mingle with the Cream, Eggs, *&c.* four Spoonfuls of Sack; half a Pint more of Cream, and almoſt a Pound of Beef-Suet chopp'd very ſmall, the Gratings of a Two-penny Loaf; and ſtirring all well together, put it into a Bag flower'd, and tie it faſt. It will be boil'd within an Hour; or may be bak'd in the Pan like the *Carrot-Pudding*. The Sauce is for both, a little Roſe-water, leſs Vinegar, with Butter beaten together and poured on it, ſweetned with the Sugar Caſter.

Of this Plant diſcreetly dry'd, is made a moſt wholſome and excellent Tea.

28. Of *Spinage.* Take a ſufficient Quantity of *Spinach*; ſtamp and ſtrain out the Juice; put to it grated Manchet, the Yolk of as many Eggs as in the former Compoſition of the *Carrot-Pudding*; ſome Marrow ſhred ſmall, Nutmeg, Sugar, ſome Corinths (if you pleaſe) a few Carroways, Roſe or Orange-flower Water (as you beſt like) to make it grateful. Mingle all with a little boil'd Cream; and ſet the Diſh or Pan in the Oven, with a Garniſh of Puff-paſte. It will require but very moderate baking. Thus have you Receipts for *Herb-Puddings.*

29. *Skirret-Milk* is made by boiling the Roots tender, and the Pulp ſtrained out, put into Cream or New-Milk boil'd, with three or four Yolks of Eggs, Sugar, large Mace, and other Spice, *&c.* And thus is compoſed any other Root-Milk. See *Acetar.* p. 138.

30. *Tanſy.*

30. *Tanſy.* Take the Gratings or Slices of three *Naples-Biſcuits*, put them into half a Pint of Cream, with twelve freſh Eggs, four of the Whites caſt out, ſtrain the reſt, and break them with two Spoonfuls of Roſe-water, a little Salt and Sugar, half a grated Nutmeg: And when ready for the Pan, put almoſt a Pint of the Juice of Spinach, Cleaver, Beets, Corn-Sallet, green Corn, Violet or Primroſe tender Leaves, (for of any of theſe you may take your Choice) with a very ſmall Sprig of Tanſy, and let it be fry'd ſo as to look green in the Diſh, with a Strew of Sugar, and ſtore of the Juice of Orange: Some affect to have it fry'd a little brown and criſp.

31. *Tart* of *Herbs.* An *Herb-Tart* is made thus: Boil freſh Cream or Milk, with a little grated Bread or *Naples-Biſcuit* (which is better) to thicken it; a pretty quantity of Chervile, Spinach, Beet (or what other Herb you pleaſe) being firſt parboil'd and chopp'd. Then add *Macaron*, or Almonds beaten to a Paſte, a little ſweet Butter, the Yolk of five Eggs, three of the Whites rejected. To theſe ſome add Corinths plump'd in Milk, or boil'd therein, Sugar, Spice at Diſcretion, and ſtirring it all together over the Fire, bake it in the Tart-Pan.

32. *Thiſtle.* Take the long Stalks of the middle Leaf of the *Milky-Thiſtle* about *May*, when they are young and tender: Waſh and ſcrape them, and boil them in Water, with a little Salt, till they are very ſoft, and ſo let them lie to drain. They are eaten with freſh Butter melted not too thin, and is a delicate and wholſome Diſh. Other Stalks of the ſame kind may be ſo treated, as the *Bur*, being tender and diſarmed of its Prickes, *&c.*

33. *Truffles*, and other *Tubers* and *Boleti*, are roaſted whole in the *Embers*; then ſlic'd and ſtew'd in ſtrong *Broth* with Spice, *&c.* as *Muſhroms* are. Vide *Acetar.* p. 132.

34. *Turnip.* Take their Stalks (when they begin to run up to Seed) as far as they will eaſily break downwards: Peel and tie them in Bundles. Then boiling them as they do *Sparagus*, are to be eaten with melted Butter. Laſtly,

35. *Minc'd*, or *Sallet-all-ſorts.*

Take Almonds blanch'd in cold Water, cut them round and thin, and ſo leave them in the Water: Then have pickl'd Cucumbers, Olives, Cornelians, Capers, Berberries, Red Beet, Buds of *Naſturtium*, Broom, *&c.* Purſlain-Stalk, Sampier, Aſh-keys, Walnuts, Muſhroms (and almoſt of all the pickl'd Furniture) with Raiſins of the Sun ſton'd, Citron and Orange-peel, Corinths (well cleans'd and dry'd) *&c.* mince them ſeverally (except the Corinths) or all together; and ſtrew them over with any Candy'd Flowers, and ſo diſpoſe of them in the ſame Diſh both mix'd, and by themſelves. To theſe add roaſted *Maroons*, *Piſtachios*, *Pine-Kernels*, and of *Almonds* four times as much as of the reſt, with ſome Roſe-water. Here alſo come in the pickl'd Flowers and Vinegar in little *China*-Diſhes. And thus have you an Univerſal *Winter-Sallet*, or an *All-ſort* in Compendium, fitted for a City-Feaſt, and diſtinguiſhed from the *Grand-Sallet*; which ſhould conſiſt of the Green blanch'd and unpickl'd, under a ſtately *Pennaſh* of *Sellery*, adorn'd with Buds and Flowers.

And thus have we preſented you a Taſte of our *Engliſh Garden Houſewifry* in the matter of *Sallets:* And tho' ſome of 'em may be vulgar, (as are moſt of the beſt Things;) yet ſhe was willing to impart them, to ſhew the Plenty, Riches, and Variety of the *Sallet-Garden:*

den: And to juſtify what has been aſſerted of the Poſſibility of living (not unhappily) on *Herbs* and *Plants*, according to *Original* and *Divine Inſtitution*, improved by Time and long Experience. And if we have admitted *Muſhroms* among the reſt (contrary to our Intention, and for Reaſons given, *Acetar.* p. 132.) ſince many will by no means abandon them, we have endeavoured to preſerve them from thoſe pernicious Effects which are attributed to, and really in them: We cannot tell indeed, whether they were ſo treated and accommodated for the moſt luxurious of the *Cæſarean Tables*, when that Monarchy was in its higheſt Strain of *Epicuriſm*, and ingroſs'd this *Haugout* for their ſecond Courſe; whilſt this we know, that 'tis but what *Nature* affords all her Vagabonds under every Hedge.

And now, that our *Sallets* may not want a Glaſs of generous Wine of the ſame Growth with the reſt of the Garden to recommend it, let us have your Opinion of the following.

Cowſlip-Wine. To every Gallon of Water put two Pounds of *Sugar*; boil it an Hour, and ſet it to cool: Then ſpread a good brown *Toaſt* on both Sides with *Yeaſt:* But before you make uſe of it, beat ſome Syrop of *Citron* with it, an Ounce and half of Syrop to each Gallon of Liquor: Then put in the *Toaſt* whilſt hot, to aſſiſt its *Fermentation*, which will ceaſe in two Days; during which time caſt in the *Cowſlip-Flowers* (a little bruiſed, but not much ſtamp'd) to the Quantity of half a Buſhel to ten Gallons (or rather three Pecks) four *Limons* ſlic'd, with the Rinds and all. Laſtly, one Pottle of *White* or *Rheniſh* Wine; and then after two Days, tun it up in a ſweet Cask. Some leave out all the Syrop.

And here, before we conclude, ſince there is nothing of more conſtant Uſe than good Vinegar; or that has ſo near an Affinity to all our *Acetaria*, we think it not amiſs to add the following (much approved) Receipt.

Vinegar. To every Gallon of Spring Water, let there be allowed three Pounds of *Malaga-Raiſins:* Put them in an earthen Jar, and place them where they may have the hotteſt Sun from *May* till *Michaelmas:* Then preſſing them well, tun the Liquor up in a very ſtrong Iron-hoop'd Veſſel, to prevent its burſting. It will appear very thick and muddy when newly preſs'd, but will refine in the Veſſel, and be as clear as Wine. Thus let it remain untouch'd for three Months before it be drawn off, and it will prove excellent *Vinegar.*

Butter. *Butter* being likewiſe ſo frequent and neceſſary an Ingredient to divers of the foregoing *Appendants*, it ſhould be carefully melted, that it turn not to Oil; which is prevented by melting it leiſurely, with a little fair Water at the bottom of the Diſh or Pan; and by continual ſhaking and ſtirring, kept from boiling or over-heating, which makes it rank.

Other rare and exquiſite *Liquors* and *Teas* (Products of our *Gardens* only) we might ſuperadd, which we leave to our *Lady Houſewives*, whoſe Province indeed all this while it is.

Kalendarium Hortenſe:

OR, THE

Gardiner's Almanack,

Directing what he is to do

MONTHLY throughout the YEAR;

And what

FRUITS and FLOWERS

Are in PRIME.

By *JOHN EVELYN*, Eſq;
Fellow of the Royal Society.

———*Labor actus in orbem.*

VIRG. Georg. 2.

Satis admirari nequeo, quod primo ſcriptorum meorum exordio jure conqueſtus ſum: Cæterarum Artium *minus vitæ neceſſariarum repertos Antiſtites*, Agriculturæ *neq*; Diſcipulos, *neq*; Præceptores *inventos.*

COLUMELL. lib. ix. cap. 1.

TO

ABRAHAM COWLEY, Esq;

SIR,

THIS *Hortulan Kalendar* is yours, mindful of the Honour once conferr'd on it, when you were pleased to suspend your nobler *Raptures*, and think it worthy your *transcribing*. It appears now with some *Advantages* which it then wanted; because it had not *that* of publishing to the *World*, how infinitely I magnify your *Contempt* of (not to say *Revenge* upon) it; whilst you still continue in *Possession* of your *Self*, and of that *Repose* which so few understand, in exchange for those *pretty Miseries* you have essay'd: O the sweet *Evenings* and *Mornings*, and all the *Day* besides, which are yours!

——— *while* Cowley's *made*
The happy Tenant of the Shade.

And the *Sun* in his *Garden* gives him all he desires, and all that he would enjoy: The Purity of visible Objects, and of pure *Nature*, before she was vitiated by Imposture or Luxury!

———*Books, wise Discourse, Gardens and Fields,*
And all the Joys that unmix'd Nature yields. Misc.

You gather the first *Roses* of the *Spring*, and *Apples* of *Autumn*: And as the *Philosopher* in *Seneca* desir'd only *Bread* and *Herbs* to dispute Felicity with *Jupiter*; you vie Happiness in a thousand easy and sweet Diversions; not forgetting the innocent *Toils* which you cultivate; the *Leisure* and the *Liberty*, the *Books*, the *Meditations*, and above all, the learned and choice *Friendships* that you enjoy: Who would not, like *You*, *Cacher sa vie?* 'Twas the wise *Impress* of *Balzac*, and of *Plutarch* before him; you give it *Lustre* and *Interpretation*. I assure you, Sir, it is what in the World I most inwardly breathe after and pursue, not to say that I envy your *Felicity*, deliver'd from the gilded *Impertinencies* of Life, to enjoy the Moments of a solid and pure *Contentment*; since those who know how *usefully* you employ this glorious *Recess*, must needs be forc'd either to *Imitate*, or, as I do, to *Celebrate* your *Example*.

Primus vere rosam atq; autumno carpere poma.

2

J. EVELYN.

INTRODUCTION
TO THE
KALENDAR.

Gen. ii. 15.

AS Paradiſe (*tho' of God's own* Planting) *was no longer* Paradiſe *than the* Man *was put into it, to* dreſs it, and to keep it; *ſo, nor will our* Gardens (*as near as we can contrive them to the reſemblance of that bleſſed Abode*) *remain long in their* Perfection, *unleſs they are alſo continually* cultivated. *But when we have ſo much celebrated the Life and Felicity of an excellent* Gard'ner, *as to think it preferable to all other Diverſions whatſoever; it is not becauſe of the* Leiſure *which he enjoys above other Men; Eaſe and Opportunity, which miniſter to vain and inſignificant Delights; ſuch as* Fools *derive from ſenſual Objects: We dare boldly pronounce it, there is not amongſt* Men *a more laborious Life than is that of a good* Gard'ner's; *but becauſe a Labour full of* Tranquility *and* Satisfaction; Natural *and* Inſtructive, *and ſuch as* (*if any*) *contributes to the moſt ſerious* Contemplation, Experience, Health, *and* Longævity, munera nondum intellecta Deum. *In ſum, a Condition it is, furniſhed with the moſt innocent, laudable, and pureſt of earthly Felicities; and ſuch as does certainly make the neareſt Approaches to that* bleſſed State, *where only they enjoy all things without Pains; ſo as thoſe who were led only by the Light of* Nature, *becauſe they cou'd fancy none more happy, thought it worthy of entertaining the Souls of their departed* Heroes, *and moſt Illuſtrious of Mortals.*

Prætermiſſas duodecim horas, *ſed* annum, *periiſſe, niſi ſua quaque quod inſtat effecerit. Quare, neceſſaria eſt* Menſtrui *cujuſque officii monitio ea, quæ pendet ex ratione* Syderum Cœli, &c. *Col. R. R. l.* ix.

But to return to the Labour, *becauſe there is nothing* excellent *which is to be attained without it: A* Gard'ner's *Work is never at an end; it begins with the* Year, *and continues to the next: He prepares the* Ground, *and then he ſows it; after that he plants, and then he gathers the* Fruits: *But in all the intermedial Spaces he is careful to dreſs it; ſo as* Columella, *ſpeaking of this continual Aſſiduity, tells us, A* Gard'ner *is not only to reckon upon the loſs of bare* twelve Hours, *but of a* whole Year, *unleſs he immediately ſet about the doing that which ought to be done that very inſtant: And therefore is ſuch a* Monthly *Notice of this Task as depends upon the* Signs *and* Seaſons, *highly neceſſary.*

* Geor. I.

* ——— tam ſunt Arcturi Sydera nobis.
Hedorumque dies ſervandi, & lucidus Anguis;
Quam quibus in patriam ventoſa per æquora vectis.
Pontus, & Oſtriferi fauces tentantur Abydi.

Gard'ners *had need each Star as well to know,*
The Kid, *the* Dragon, *and* Arcturus *too,*
As Sea-men, *who, thro' diſmal Storms, are wont*
To paſs the Oyſter-breeding Helleſpont.

All which duly weighed, how precious *the* Time *is, how precipitous the* Occaſion, *how many Things to be done in their juſt* Seaſon, *and how intolerable a Confuſion ſucceeds the ſmalleſt* Neglect (*after once a* Ground *is in order*) *we thought we ſhould not attempt an unacceptable* Work, *if* here *we endeavour'd to preſent our Lovers of the* Garden *with a compleat* Cycle *of what is requiſite to be done throughout every* Month *of the* Year; *and the* Parts *diſpos'd in ſuch* Order, *as may not only facilitate the* Work, *but render it agreeable, and redeem it from that extreme Perplexity, which for want of a conſtant and uniform* Method, *we find does ſo univerſally diſtract the vulgar Sort of* Gardiners: *They know not* (*for the moſt part*) *the* Seaſons *when* Things *are to be* * *done; and when at any Time they come to know, there often falls out ſo many Things to be done on the ſudden, that ſome of them muſt of Neceſſity be neglected for* that *whole* Year, *which is the greateſt Detriment to this* Myſtery, *and frequently irrecoverable.*

* *Quia caput eſt in omni negotio noſſe quid agendum ſit*, &c. Col. l. i. c. 1.

We are yet far from impoſing (*by any Thing we have here alledg'd concerning theſe* Menſtrual Periods) *thoſe nice and* hypercritical *Punctilo's, which ſome* Aſtrologers, *and ſuch as purſue their* Rules, *ſeem to oblige our* Gardiners *to; as if, forſooth, all were loſt, and our Pains to no Purpoſe, unleſs the* Sowing *and the* Planting, *the* Cutting, *and the* Pruning, *were perform'd in ſuch and ſuch an exact* Minute *of the* Moon: In hac autem Ruris diſciplina non deſideratur ejuſmodi ſcrupuloſitas. *There are, indeed, ſome certain* Seaſons, *and* ſuſpecta tempora, *which the prudent* Gardiner *ought carefully* (*as much as in him lies*) *to prevent: But as to the reſt, let it ſuffice, that he diligently follow the* Obſervations *which* (*with ſome Induſtry*) *we have* collected *together, and here preſent him, as in ſo many* Synoptical Tables *calculated for his* Monthly *Uſe; to the end he may pretermit nothing which is under his* Inſpection, *and is* neceſſary, *or diſtract his* Thoughts *and* Employment *before the* Seaſons *require it.*

Col. de R. R. lib. ix. cap. 364.

Let none therefore deſpiſe and neglect theſe ſhort Directions, *ſo freely and ingenuouſly imparted; I ſhall not ſay to the* Regret *of all our* Mercenary Gardiners, *becauſe I have much Obligation to ſome above that* Epithet; *who being certainly amongſt the moſt* expert *of their* Profeſſion *in* England, *are no leſs to be* celebrated *for their free* Communications *to the* Publick, *by divers* Obſervations *of theirs which have furniſhed to this* Deſign. *And it is from the* Reſult *of very much* Experience, *and an extraordinary Inclination to cheriſh ſo innocent and laudable a* Diverſion, *and to incite an* Affection *in the* Nobleſs *of this* Nation *towards it; that there are ſome ſo kind and generous, as to communicate their Knowledge in the* Hortulan Myſtery, *without* Impoſture, *or invidious* Reſerve. *The very* Catalogue *of* Fruits *and* Flowers, *for the* Orchard *and the* Parterre, *will gratify the moſt innocent of the* Senſes, *and whoever elſe ſhall be to ſeek a rare and univerſal* Choice *for his* Plantation.

Touching

Touching the Method, *it is so obvious, that there needs no farther Directions*; *and the* Consequent *will prove so certain, that a* Work *of the busiest Pains is by this little* Instrument *made not only easy, and, (as we said) agreeable, but capable to preserve a* Garden *in that Perfection of* Beauty *and* Lustre, *without* Coufusion *or* Prejudice. *Nor indeed could we think of a more comprehensive* Expedient, *whereby to assist the frail and torpent* Memory *through so* multifarious *and numerous an* Employment (*the daily* Subject *of a* Gardiner's *Care*) *than by such an* Oeconomy *and* Discipline, *as our Industrious* Gardiner *may himself be continually* improving *from his own* Observations *and* Experience. *In the mean time, we have, at the Instance of very many* Persons, *who have been pleased to acknowledge the* Effects *of former less perfect* Impressions, *thought good to publish and enlarge this* Edition. *But the* Kalendar *might be considerably augmented, and recommend it self to more* Universal Use, *by taking in the* Monthly Employments *of all the Parts of* Agriculture, *as they have been begun to us in* Columella, Palladius, de Seres, Augustino Gallo, Vincenzo Tanara, Herrera, *our* Tusser, Markham, *and others*; *especially, if* well *and* judiciously *apply'd to the* Climate *and* Temper *of the several* Countries: *But it were* here *besides our* Institution, *nor would the* Pages *contain them. What is yet found* vacant, *has been* purposely *left so, that our* Gardiner *may supply as he finds Cause*; *for which reason likewise we have rang'd both the* Fruits *and* Flowers *in* Prime *after somewhat a* promiscuous *Order, that the* Method *might be pursu'd with the least Disorder. Lastly,*

Col. *de* R. R. *lib.* xi. *c.* 11. Pall. *lib.* i. *Tit.* 1.

The Fruits *and* Flowers *in* Prime *are to be as well consider'd in relation to their* Lasting *and* Continuance, *as to their* Maturity *and* Beauty.

That it may appear what Additions, *and considerable* Improvements, *are made to this* Edition, *I have caused the* Margents *to be pointed where they occur.*

J. E.

Kalen-

Kalendarium Hortenſe.

JANUARY

Hath xxxi Days,——long 8^{h}—0^{m}
Sun riſes 8^{h}—0^{m}——Sets 4^{h}—0^{m}

Note, That for the Riſing *and* Setting *of the* Sun, *and* Length *of the* Days, *I compute from the* firſt *of every* Month, London Lat.

To be done

In the *Orchard* and *Olitory Garden.*

TRENCH the Ground, and make it ready for the *Spring:* Prepare alſo *Soil*, and uſe it where you have Occaſion; for which Purpoſe make plentiful Proviſion of *Neats*, *Horſe*, and *Sheeps* Dung eſpecially, that you may have ſome of two Years Preparation, by now and then ſtirring, and opening it to the Air, and laſtly, ſcreening it, reſerve it for Uſe in ſome hard-bottom'd ſhady Place, a little excavated, that the Rain waſh not away the Virtue of it: Suffer no *Weeds* to grow on it: Have ſome Heaps of ſweet *Under-Paſture natural Mould*, and fine *Loam*, to mingle with your *Dung*, as occaſion requires.

Note, That the Dung of *Pigeons* and *Poultry*, mix'd with *Mould*, is excellent for the *Fig-Tree*, (to which I now adviſe you to lay it) *Aſparagus*, *Strawberries*, &c. but then it muſt have paſs'd its firſt Heat, leſt apply'd before, it *burn* the Plant.

Horſe-dung, if not exceedingly rotted, will infect the Ground with Knot-graſs, the very *worſt* of Garden-weeds; and is therefore only proper for moiſt and cold Grounds, and to be us'd for the *Hot-Bed.*

Abricots and *Peaches* require rather a natural, rich, and mellow Soil, than much *Dung.*

Dreſs your *Sweet-Herb* Beds rather with a new Moulding every *Second Year*, than with over-dunging or rank Soil.

Mould, made of the rotting of *Weeds*, &c. is apt to produce the ſame *Weeds*. Vide *Diſcourſe of Earth*, p. 19. *See the Directions in my Treatiſe of Earth.*

Jan. Olit. Dig *Borders*, &c. *Uncover*, as yet, *Roots* of *Trees*, where *Ablaqueation* is requiſite.

Plant *Quick-ſets*, and tranſplant *Fruit-Trees*, if not finiſh'd: Set * *Vines*, and begin to *prune* the *Old: Prune* the Branches of *Orchard Fruit-Trees*; eſpecially the long planted, and that towards the *Decreaſe:* But for ſuch as are newly planted, they need not be diſbranched till the *Sap* begins to ſtir, that is, not till *March*; that ſo the Wound may be healed, with the *Scar* and *Stub*, which our Froſts do frequently leave: Beſides, one then beſt diſcerns the *Fruit-buds*. In this Work cut off all the Shoot of *Auguſt*, unleſs the nakedneſs of the Place incline you to ſpare it: *Conſult my* French Gardiner, *Part* 1. *Sect.* 3. For this is a moſt material *Addreſs*, · towards which theſe · ſhort Directions may contribute.

* See *Mr.* Roſe's *Vineyard vindicated*, c. 5.

Pomon c. 8.

· Learn firſt to know and diſtinguiſh the *Bearing* and *Fruit-buds* · from the *Leaf-buds:* The *Fruit-buds* are always fuller and more · turgid: Theſe you are careſully to ſpare, and what you prune from · the reſt, cut off ſlanting above the *Bud*, with a very ſharp Knife, · leaving no Rags.

· In taking off an whole Branch or Limb, cut cloſe to the *Stem*, · that the *Bark* may cover it the ſooner.

· Thoſe *Buds* which either put forth juſt between the *Stem* and · *Wall* (in *Mural-Trees* only) or oppoſite to them, are to be rub- · bed off as ſoon as they appear, ſparing only the collateral Branches.

· Keep your *Wall* and *Paliſade-Trees* from mounting too haſtily, · that they may form beautiful and ſpreading Branches, ſharp'd like a · *Lady's Fan*, and cloſe to the Ground.

· Take the *Water-boughs* quite away, which are thoſe that on *Stan-* · *dards* being ſhaded, and dripp'd upon, remain ſmooth and naked · without *Buds*.

· Where you deſire *Mural Fruit-Trees* ſhould ſpread, garniſh, and · bear, cut ſmoothly off the next unbearing Branch.

· Forbear pruning *Wall-Fruit* that is tender, till *February*.

· Where *Branches* are ſo thick and entangled, that they gall one · another, or exclude the *Sun* and *Air*, thin the Place at Diſcre- · tion.

You may now begin to *Nail* and Trim your *Wall-Fruit*, and *Eſpaliers*.

Cleanſe *Trees* of *Moſs*, &c. the *Weather* moiſt.

Gather *Cyons* for *Graffs* before the *Buds* ſprout; and about the latter end, *graff* them in the *Stock*, *Pears*, *Cherries*, and *Plums*, and · remember this for a *ſpecial Rule*, That you always take the *Cyon* · from ſome *goodly* and *plentifully-bearing Tree:* For if it be from a · young Tree, or one which has not yet born Fruit (though of never · ſo *excellent* a Kind) it will be a long Time e'er your *Graff* produce · any *Fruits* conſiderable.

Now alſo remove your *Kernel-ſtocks* to more commodious Diſtan- ces in your *Nurſery*, cutting off the † *Top-Root*. Set *Beans*, *Peaſe*, &c.

† Vide *March.*

Sow alſo (if you pleaſe) for early *Cauly-flowers*.

Sow *Chervil*, *Lettuce*, *Radiſh*, and other (more delicate) *Salletings*; if you will raiſe in the *Hot-Bed*.

In over-wet, or hard Weather, *cleanſe*, *mend*, *ſharpen*, and prepare *Garden-Tools*.

Turn

Turn up your *Bee-hives*, and ſprinkle them with a little warm and ſweet *Wort*; do it dexterouſly. *Jan. Olit.*

Fruits in *Prime*, and yet *laſting*.

APPLES.

KEntiſh Pippin, *Ruſſet Pippin*, *Golden Pippin*, *French Pippin*, *Kirton Pippin*, *Holland Pippin*, *John-Apple*, Winter *Queening*, *Marigold*, *Harvey-Apple*, *Pomewater*, *Pomeroy*, *Golden Doucet*, *Apis*, *Reineting*, *Lones Pear-main*, Winter *Pear-main*, &c.

PEARS.

Winter *Muſk*, (bakes well) Winter *Norwich*, (excellently baked) Winter *Bergamot*, Winter *Bon-creſtien*, both *Mural: Vergoules*, the great *Surrein*, &c.

JANUARY

Hath xxxi Days——long 8^h—0^m
Sun riſes 8^h—0^m——Sets 4^h—6^m

To be done

In the *Parterre* and *Flower-Garden*.

SET up your *Traps* for *Vermine*; eſpecially in your *Nurſeries* of *Kernels* and *Stones*, and amongſt your *bulbous Roots*; which will now be in Danger. A *Paſte* made of coarſe *Honey*, wherein is mingled *Green-glaſs* beaten, with *Copperas*, may be laid near their Haunts. About the middle of this *Month*, plant now your *Anemony Roots*, and *Ranunculus's*, which you will be ſecure of, without *covering*, or farther Trouble: Preſerve from too great and continuing *Rains* (if they happen) *Snow* and *Froſt*, our choiceſt *Anemonies* and *Ranunculus's* ſow'd in *September* or *October* for earlier *Flowers*: Alſo your *Carnations*, and ſuch *Seeds* as are in peril of being waſh'd out, or *over-chill'd* and *frozen*; covering them under *Shelter*, and ſtriking off the *Snow* where it lies too weighty; for it certainly rots, and burſts your early-ſet *Anemonies* and *Ranuuculus's*, &c. unleſs planted now in the *Hot-Beds*; for now is the *Seaſon*, and they will *Flower* even in *London*. Towards the *end*, earth-up, with freſh and light Mould, the *Roots* of thoſe *Auricula's* which the *Froſts* may have uncover'd; filling up the *Chinks* about the Sides of the *Pots* where your choiceſt are ſet, but they need not be *hous'd*; it is a hardy Plant.

Jan. Par.

Flowers in *Prime*, or yet *lasting.*

WInter *Aconite*, some *Anemonies*, Winter *Cyclamen*, Black *Hellebor*, *Brumal Hyacinth*, *Oriental Jacinth*, *Levantine Narcissus*, *Hepatica*, *Primroses*, *Laurus-tinus*, *Mezereon*, *Præcoce Tulips*, &c. especially if raised in the *Hot-Bed*. Note,

That both these *Fruits* and *Flowers*, are more *early* or *tardy*, both as to their prime *Seasons* for *eating*, and Perfection of *blowing*, according as the *Soil* and *Situation* are qualify'd, by *Nature* or *Accident*. Note also,

That in this *Recension* of *Monthly Flowers*, it is to be understood for the *whole* Period that any *Flower* continues, from its first *appearing* to its final *withering*.

♓

FEBRUARY

Hath xxviii Days,—long $9^h—24^m$
Sun rises $7^h—13^m$—Sets $4^h—45^m$

To be done

In the *Orchard* and *Olitory Garden.*

PRUNE *Fruit-Trees* and *Vines* as yet; for now is your Season to *bind*, *plash*, *nail*, and *dress*, without danger of *Frost*: *This* to be understood of the most tender and delicate *Wall-Fruit*, not finish'd before; do this before the *Buds* and *Bearers* grow turgid; and yet in the *Nectarine* and like delicate Mural-Fruit, the later your *Pruning* the better, whatever has been, and still is, the contrary Custom.

And let your *Gardiner* endeavour to apply the Collateral Branches of his *Wall-Fruits*, as near as possibly he can (without Violation and unnatural *bending* and *reverting*) to the *Earth* or *Borders*; so as the *Fruit* (when grown) may almost touch the Ground: The rest of the *Branches* following the same Order, will display the *Tree* like a Lady's *Fan*, and repress the common Exuberance of the leading and middle Shoots, which usually make too hasty an Advance: A *Gardiner* expert in *this*, and the right Art of *Pruning*, may call himself a *Workman sans Reproach*.

Remove *Graffs* of former Years *Graffing*. Cut and lay *Quicksets*; and *trim* up your *Palisade Hedges* and *Espaliers*. Plant *Vines* as yet, other *Shrubs*, *Hops*, &c.

Set all Sorts of *Kernels* and *stony Seeds*, which *Field-Mice* will certainly ruin, before they sprout, unless prevented: Also sow *Beans*, *Pease*, *Rounsevals*, *Corn-sallet*, *Marigold*, *Anniseeds*, *Radish*, *Parsenips*, *Carrots*, *Onions*, *Garlick*, &c. And plant *Potatoes* in your worst Ground.

Now

Now is your Seaſon for *Circumpoſition* by *Tubs* or *Baskets* of *Earth*, and for laying of *Branches* to take root. You may plant forth your *Cabbage-Plants*. *Feb. Olit.*

Rub *Moſs* off your Trees after a ſoaking *Rain*, and ſcrape, and cleanſe them of *Cankers*, *&c.* draining away the *wet* (if need require) from the too much moiſtned *Roots*, and earth-up thoſe *Roots* of your *Fruit-Trees*, if any were uncover'd. · Continue to *dig* and *manure*, if Wea-· ther permit. Cut off the *Webs* of *Caterpillars*, &c. from the Tops of *Twigs* and *Trees* to burn. Gather *Worms* in the *Evenings* after *Rain*.

Kitchin-Garden Herbs may now be planted, as *Parſly*, *Spinage*, *Onions*, *Leeks*, and other hardy *Pot-Herbs*. Towards the *middle* or *latter end* of this *Month*, till the *Sap* riſes briskly, *graff* in the *Cleft*, and ſo continue till the laſt of *March*; they will hold *Apples*, *Pears*, *Cherries*, *Plums*, &c. the *New Moon*, and the *Old Wood* is beſt. Now alſo plant out your *Cauly-flowers* to have early; and begin to make your *Hot-Bed* for the firſt *Melons* and *Cucumbers* to be ſow'd in the Full; but truſt not altogether to them. · You may all this Month, · and the former, have early *Sallets* on the *Hot-Bed*, and under *Glaſs* · Frames and Bells. Sow *Aſparagus*. Laſtly,

Half open your *Paſſages* for the *Bees*, or a little before (if *Weather* invite;) but continue to feed weak *Stocks*, &c.

Fruits in *Prime*, or yet *laſting*.

APPLES.

Kentiſh, *Kirton*, *Ruſſet*, *Holland Pippins*; *Deux-ans*, Winter *Queening*, *Harvy* ſometimes, *Pome-water*, *Pome-roy*, *Golden-Doucet*, *Reineting*, *Lones*, *Pearmain*, Winter *Pearmain*, &c.

PEARS.

Bon-Chreſtien of Winter, Winter *Poppering*, Little *Dagobert*, &c.

♓

FEBRUARY

Hath xxviii days, ——long 9^h—24^m
Sun riſes 7^h—13^m——Sets 4^h—45^m

To be done

In the *Parterre* and *Flower-Garden*.

CONtinue *Baits*, *Vermine-Traps*, &c. Sow *Alaternus* Seeds in *Caſes*, or *open Beds*; cover them with *Thorns*, that the *Poultry* ſcratch them not out. Sow alſo *Lark-Spurs*, &c.

Feb. Par. Now and then *air* your hous'd *Carnations*, in *warm* Days eſpecially, and mild *Showers*; but if like to prove *cold*, ſet them in again at Night.

Furniſh (now towards the end) your *Aviaries* with *Birds* before they couple, *&c.* and hang up Materials for them to build their *Neſts* with.

Note, That ſuch *Birds* as feed not on *Seeds* alone, ſhould be ſeparated by a Partition of *Wyre*, from thoſe who feed on *bruiſed Seeds*, *Paſtes*, *fleſhy* or *pulpy* Mixtures; as the *Sky-Lark*, *Wood-Lark*, *Throſtle*, *R. Red-breaſt*, &c.

Flowers in *Prime*, or yet *laſting*.

WInter *Aconite*, ſingle *Anemonies*, and ſome double; *Tulips*, *Præcoce*, *Hyacinthus*, *Stellatus*, *Vernal Crocus*, Black *Helbore*, ſingle *Hepatica*, *Perſian Iris*, *Leucoium Bulboſum*, *Dens Caninus* three leav'd, *Vernal Cyclamen* white and red, *Mezereon*, *Ornithogal. max. alb.* Yellow *Violets* with large Leaves, early *Daffodils*, &c.

MARCH

Hath xxxi days,——long 11^h—22^m
Sun riſes 6^h—19^m—Sets 05^h—41^m

To be done

In the *Orchard* and *Olitory Garden*.

YET *Stercoration* is ſeaſonable, and you may plant what *Trees* are left, tho' it be ſomething of the lateſt, unleſs in very backward or *moiſt* Places.

Now is your chiefeſt and beſt time for raiſing on the Hot-bed *Melons* *Cucumbers*, *Gourds*, &c. which about the *ſixth*, *eighth*, or *tenth* Day will be ready for the Seeds; and eight Days after, *prick* them forth at diſtances, according to the *Method*, &c.

If you will have them *later*, begin again in ten or twelve Days after the firſt; and ſo a third time, to make *Experiments*. Remember to preſerve the *Hot-bed* as much as poſſible from *Rain*; for cool him you may eaſily, if too violent, but not give it a competent Heat, if it be ſpent, without new-making. See *Diſcourſe of Earth*, &c.

Now is the beſt time for pruning your young *Murals*, and indeed other Wall-Trees. See the Reaſon in *January*.

Graff all this *Month*, beginning with *Pears*, and ending with *Apples*, unleſs the *Spring* prove extraordinary forwards: See our *Pomona*, c. 3.

Now

Now also plant *Peaches* and *Nectarines*, but cut not off the *Top-Roots*, as you do of other Trees; for it will much prejudice them: Prune last Year's *Graffs*, and cut off the *Heads* of your *budded Stocks*. Take off the *Littier* from your Kernel-Beds; see *Octob.* or you may forbear till *April*. · Stir your new-planted *Ground*, as directed in *Disc. of Earth*, p. 13. and for the *Nursery*, p. 14. *Mar. Olit.*

You may as yet cut *Quick-sets*, and cover such *Tree-Roots* as you laid bare in *Autumn*.

It were profitable now also to *top* your *Rose-Trees*, (· which always · bear on the fresh Sprouts of the same Spring,) a little with your Knife near a *Leaf-bud*, and to prune off the dead and withered Branches, keeping them lower than the Custom is, and to a single *Stem*. · Cut · away some Branches of the *Monthly Rose-Tree* close, after the first · bearing.

Slip and set *Sage*, *Rosemary*, *Lavender*, *Thyme*, &c.

· *Note*, That *Rosemary* thrives better by cutting off the Sprigs, than · by ragged Slips, which leaves an incurable *Scar* on the *old* Plant. · Cut them therefore at a little distance from the *Stem*, and this so soon · as it *flowers*, which is commonly in this *Month*.

· Where the Soil is *Clay*, or over moist, mingle it plentifully with · *Brick-dust*.

Sow in the beginning *Endive*, *Succory*, *Leeks*, *Radish*, *Beets*, *Chard Beet*, *Scorzonera*, *Parsnips*, *Skirrets*: · Sow *Skirrets* in rich, · mellow, fresh Earth and moist; and when about a Finger long, plant · but one *single* Root in a Hole at a Foot distance: Sow also *Parsly*, *Sorrel*, *Bugloss*, *Borage*, *Chervil*, *Sampier* (to replant in *May*) *Sellery*, *Smallage*, *Alisanders*, &c. Several of which continue many Years without renewing, and are most of them to be *blanch'd* by laying them under *Littier*, and earthing up.

Sow also *Lettuce*, *Onions*, *Garlick*, *Orack*, *Purslain*, *Turnips*, (to have early) Monthly *Pease*, &c. these *annually*. Begin to tie up some *Lettuce*.

Transplant the *Beet-chard* which you sow'd in *August*, to have most ample *Chards*,

Sow also *Carrots*, *Cabbages*, *Cresses*, *Nasturtium*, *Fennel*, *Marjoram*, *Basil*, *Tobacco*, &c. And *transplant* any sort of *Medicinal Herbs*.

· Whatsoever you now *Sow* or *Plant* of this sort, water not over · *hastily*, nor with too great a *Stream*, for it hardens the Ground, without penetrating; rather endeavour to imitate the *natural Shower*; but spare not Watering if necessary.

· Never cast Water on things newly planted, nor on *Flowers*, but · at convenient distance, so as rather to *moisten* the Ground, without *sobbing* the *Leaves* of the *Plant*, which ends in *scorching*.

Mid-*March* dress up (with a little fresh *Manure*) and string your *Strawberry-Beds*, · clipping away all their Runners till they blossom. · And *note*, That you can hardly over-water your *Strawberry-Beds* · in a dry Season; yet better not water at all, than too sparingly. Uncover your *Asparagus*, spreading and loosning the Mould about them, for their more easy penetrating; · flourishing the Beds thinly, with a · little fine fresh *Manure*. Also may you now transplant *Asparagus* Roots to make new *Beds*. See *Dsc. of Earth*, p. 34. Uncover also

Artichoaks

Mar. Par. · *Artichoaks* cautiouſly, and by degrees: The like your *Fig-Trees*, · cutting off the dead Wood.

By this time your *Bees* ſit; keep them cloſe Night and Morning, if the Weather prove unkind.

Turn your *Fruit* in the Room where it lies, but open not yet the *Windows*.

Fruits in *Prime*, or yet *laſting*.

APPLES.

GOlden *Ducket*, [*Doucet*] *Pippins*, *Reineting*, *Lones Pear-main*, Winter *Pearmain*, Winter *Bon-Cretienne*, *John-Apple*, &c.

PEARS.

Later *Bon-Chreſtien*, Double *Bloſſom Pear*.

MARCH

Hath xxxi days,——long 11^h—22^m

Sun riſes 6^h—19^m——Sets 05^h—41^m

To be done

In the *Parterre* and *Flower-Garden*.

Take and *Bind* up your weakeſt *Plants* and *Flowers* againſt the Winds, before they come too fiercely, and in a moment *proſtrate* a whole Year's Labour.

Plant *Box*, &c. in *Parterres*. Sow *Pinks*, *Sweet-Williams* and *Carnations*, from the *middle* to the *end* of this *Month*. Sow *Pine-kernels*, *Fir-ſeeds*, *Bays*, *Alaternus*, *Phillyrea*, and moſt *perennial Greens*, &c. Or you may ſtay till ſomewhat *later* in the Month. Sow *Auricula-ſeeds* in *Pots* or *Caſes*, in fine *Willow*-earth, a little *loamy*; and place what you ſow'd in *September* (which is the more proper Seaſon) now in the Shade, and water it.

Plant ſome *Anemony Roots* to bear late, and ſucceſſively; eſpecially in and about *London*, where the *Smoke* is any thing tolerable; and if the Seaſon be very dry, water them well once in two or three Days, as likewiſe *Ranunculus's*. *Fibrous* Roots may be tranſplanted about the middle of this Month; ſuch as *Hepatica's*, *Primroſes*, *Auricula's*, *Camomile*, *Narciſſus Tuberoſe*, *Matricaria*, *Gentianella*, *Hellebore*, and other *Summer-flowers*. Set *Leucoium*, ſlip the *Keris* or *Wall-flower*; and towards the end, *Lupines*, *Convolvolus's*, *Spaniſh* or ordinary *Jaſmine* You may now, a little after the *Equinox*, prune *Pine* and *Fir-Trees*. See *September*.

Towards

Towards the middle, or latter end of *March*, ſow on the *Hot-bed* *Mar. Par.*
ſuch Plants as are late bearing Flowers or Fruit in our Climate; as *Balſamine*, and *Balſamum mas*, *Pomum Amoris*, *Datura*, *Æthiopic Apples*, ſome choice *Amaranthus*, *Dactyls*, *Geranium's*, *Hedyſarum Clipeatum*, *Humble* and *Senſitive* Plants; *Lentiſcus*, *Myrtle-Berries* (ſteep'd a while) *Capſicum Indicum*, *Canna Indica*, *Flos Africanus*, *Mirabile Peruian: Naſturtium Ind. Indian Phaſeoli*, *Volubilis*, *Myrrh*, *Carrobs*, *Marcoc*, ſive *Flos Paſſionis*, and the like *rare* and *exotic* Plants which are brought us from hot Countries. *Note*, That the *Naſturtium Ind. African Marigolds*, *Volubilis*, and ſome others, will come (though not altogether ſo forward) in the *Cold-bed* without Art; but the reſt require much, and conſtant Heat, and therefore ſeveral *Hot-beds*, till the common Earth be very warm by the Advance of the Sun, to bring them to a due Stature, and perfect their Seeds: Therefore your choiceſt *Amaranthus* being riſen pretty high, remove them into another temperate *Hot-bed*; the ſame you may do with your *African* and *Senſitive* Plants eſpecially, which always keep under Glaſſes. See *Diſcourſe of Earth*, p. 36, 37.

About the Expiration of this Month carry into the Shade ſuch *Auricula's*, Seedlings, or *Plants*, as are for their Choiceneſs reſerved in *Pots*.

Tranſplant alſo *Carnation Seedlings*. Giving your *Layers* freſh Earth, and ſetting them in the Shade for a Week; then likewiſe cut off all the *ſick* and infected Leaves; for now you may ſet your choice ones out of *Covert*, as directed in *February*.

Now do the *farewel Froſts* and *Eaſterly Winds* prejudice your choiceſt *Tulips*, and ſpot them; therefore cover ſuch with Mats or Canvas to prevent *Freckles*, and ſometimes Deſtruction. The ſame Care have of your moſt precious *Anemonies*, *Auricula's*, *Chamæ-iris*, *Brumal Jacynths*, early *Cyclamen*, &c. Wrap your ſhorn *Cypreſs* Tops with Straw *Wiſps*, if the *Eaſtern Blaſts* prove very tedious; and forget not to cover with dry Straw or Peaſe-hame, your young expoſed *Ever-greens*, as yet Seedlings; ſuch as *Fir*, *Pine*, *Phillyrea*, *Bays*, *Cypreſs*, &c. till they have paſs'd two or three Years in the Nurſery, and are fit to be tranſplanted; for the ſharp *Eaſterly* and *Northerly* Winds tranſpierce, and dry them up. Let this alſo caution you upon all ſuch Extremities of Weather during the whole Winter; but be mindful to uncover them in all benign and tolerable Seaſons and Intermiſſions; it being theſe acute Winds, and ſeldom or never the hardeſt Froſts or Snows, which do the Miſchief. About the End uncover even your choiceſt Plants, but with Caution; for the Tail of the Froſts yet continuing, and ſharp Winds, with the ſudden darting Heat of the Sun, ſcorch and deſtroy them in a moment; and in ſuch Weather neither ſow nor tranſplant.

Sow *Stock-Gilly-flower* Seeds in the *Full*, to produce double *Flowers*.

· In the mean time let Gentlemen and Ladies, who are curious,
· truſt little by *Mangoniſme*, *Inſuccations*, or *Medicine* to alter the
· Species, or indeed the Forms and Shapes of *Flowers* conſiderably,
· that is, to render that *double*, which Nature produces but *ſingle*,
· &c. but by frequent *tranſplanting*, *removing*, &c. *enriching* the
· Mould to *multiply* and *double*; and by ſtarving and hardening the

Mar. Par. · Earth, and conſequently taking from the Roots the freer Nouriſh-
· ment, for *variation* and *change*. *Make much of this* Document.

Now you may ſet your *Oranges*, *Limons*, *Myrtles*, *Oleanders*, *Lentiſci*, *Dates*, *Aloes*, *Amomums*, and like tender Trees and Plants in the *Portico*, or with the Windows and Doors of the *Green-houſes* and *Conſervatories* open, for eight or ten Days before *April*, or earlier, if the Seaſon invite (that is, if the ſharp Winds be paſt) to acquaint them gradually with the Air: I ſay gradually and carefully, for this Change is the moſt *critical* of the whole Year; truſt not therefore the Nights too confidently, unleſs the Weather be throughly ſettled: Now is alſo your Seaſon to raiſe Stocks to bud *Oranges* and *Limons* on, by ſowing the Seeds · early this Month, in ſuch Mould as is mentioned in · *May*: Let the Seeds be of the *Sevil Orange*, half a dozen in a Pot · is enough, plunging it in the *Hot-bed*; renew'd ſome time in *May*: · Thus they will have ſhot near a Foot before Winter, and at the · End of three Years be fit for *Inoculation*; which you may now alſo · *bud* at the End of this Month, placing two *Buds* oppoſite to each · other within an Inch of the Earth. *Make much of this Direction.*

Some of the hardieſt *Ever-greens* may not be tranſplanted, eſpecially if the Weather be *moiſt* and temperate. Laſtly,

Bring in Materials for the *Birds* in the *Aviary* to build their *Neſts* withal.

Flowers in *Prime*, or yet *laſting*.

Anemonies, Spring *Cyclamen*, Winter *Aconite*, *Crocus*, *Bellis*, white and black *Hellebore*, ſingle and double *Hepatica*, *Leucoion*, *Chamæ-iris* of all Colours, *Dens Caninus*, *Violets*, *Fritillaria*, *Chelidonium* ſmall with double Flowers, *Hermodactyls*, *Tuberous Iris*, *Hyacinth Zeboin*, *Brumal*, *Oriental*, &c. *Junquills*, great *Chalic'd*, *Dutch Mezereon*, *Perſian Iris*, *Auricula's*, *Narciſſus* with large Tufts, common, double, and ſingle *Primroſes*, *Præcoce Tulips*, *Spaniſh Trumpets* or *Junquils*, *Violets*, yellow *Dutch Violets*, *Ornithogalum max. alb.* *Crown Imperial*, *Grape Flowers*, *Almonds* and *Peach Bloſſoms*, *Rubus Odoratus*, *Arbo Judæ*, &c.

♉

APRIL

Hath xxx days,——long 13^h—23^m
· Sun riſes 5^h—18^m——Sets 6^h—42^m

To be done

In the *Orchard* and *Olitory Garden*.

SOW Sweet *Marjorum*, *Hyſſop*, *Baſil*, *Thyme*, Winter *Savory*, *Scurvy-graſs*, and all fine and tender *Seeds* that require the *Hot-bed*.

· *Note*,

· *Note*, That *Sweet Herbs* ſhould be ſtirr'd up and new moulded, *April Olit.*
· to make them ſtrike freſh Roots.

Sow alſo *Lettuce*, *Purſlan*, *Caully-flower*, *Radiſh*, *Leeks*, &c.

· One may ſow *Radiſh* and *Carrots* together in the ſame Bed, ſo as
· the firſt may be drawn, whilſt the other is ready. Sow *Radiſh*, *Let-*
· *tuce*, *Purſlan*, *Sampier*, *Parſnips*, *Carrots*, on the ſame Ground,
· gathering each Kind in their Seaſons, leaving the *Perſnips* to Win-
· ter: But it were good to change the Ground for Carrots and Parſnips
· now and then.

· Remember to *weed* them when they are about two Inches high,
· and a little after to *thin* them with a ſmall *Haugh*.

Plant *Artichoak-ſlips*, &c.

Set *French-Beans*, &c. And ſow *Turnips* to have them early.

You may yet ſlip *Lavendar*, *Thyme*, *Pennyroyal*, *Sage*, *Roſemary*, &c. · and the oftner you clip and cut them, the more will they thrive.
· *Sage* ſo dreſs'd at the *Spring* and *Autumn*, will cauſe it to continue
· long and fair without replanting.

· To have excellent *Salleting* all the Year round, ſow *Turnip-ſeed*,
· *Radiſh*, *Lettuce*, *Purſlan*, *Borrage*, *Tarragon*, and all other kinds,
· in very rich Ground, and in *Winter* and *Spring* on the *Hot-bed* co-
· ver'd, *&c.* drawing them Root and all as ſoon as they open a Leaf as
· broad as a Three-penny Piece, and ſo repeat ſowing monthly.

· *Geld* and prune *Strawberries:* Now alſo *Wall-Trees*, eſpecially
· the *Peach*, ſhould have a *ſecond* Pruning, ſhortning the Branches juſt
· above the *knit Fruit*.

Towards the *middle* of this Month begin to plant forth your *Melons* and *Cucumbers*, and ſo to the *latter end*, your *Ridges* well prepared.

Gather up *Worms* and *Snails* after Evening Showers; continue this after all Summer Rains.

· Soot-Aſhes, Refuſe Sweepings of Tobacco-Stalks, made into a fine
· Powder, or Duſt, and ſtrewed half an Inch in thickneſs at the foot of
· Trees, and now and then renewed, prevents Piſmires, and other
· crawling Inſects, from invading the Fruit, *&c.*

· *Weed* and *haugh* betimes. See *July*. In ſuch Bordures as you
· plant *Wall-Fruit*, or *Eſpaliers* (which Bordures ſhould be, at the
· leaſt, four or five Foot in breadth) plant neither *Herbs* nor *Flowers*,
· that you may be continually ſtirring the Mould with the Spade, and
· (as need is) recreating it with Compoſts: This may be inſtead (and
· far better) of *Hand-weeding*; only you may adorn the outward Verge
· with an Edging of *Pink*, *Limon*, *Thyme*, *Veronica*, &c. renewing
· them when you perceive them to grow ſticky, and leave Gaps; and
· you may ſprinkle the reſt of the Surface with *Lettuce*, *Radiſh*,
· *Turnip-ſeeds* for tender Salleting, ſo you be ſure to pull them up
· Root and all by that time they are an Inch high, and ſhew a Leaf
· no broader than a Three-pence.

Open now your *Bee-hives*, for now they *hatch*; look carefully to them, and prepare your *Hives*, &c.

Fruits

Fruits in *Prime*, or yet *laſting.*

APPLES.

Pippins, Deux-ans, Weſt-berry Apple, Ruſſeting, July-flowers, flat *Reinet*, &c.

PEARS.

Latter *Bon-chreſtien, Oak-pear*, &c. Double *Bloſſom*, &c.

♉

APRIL

Hath xxx Days,——long 13^h—23^m
Sun riſes 5^h—18^m——Sets 06^h—42^m

To be done

In the *Parterre* and *Flower-Garden.*

SOW divers *Annuals* to have *Flowers* all *Summer*; as double *Marigold, Digitalis, Delphinium, Cyanus* of all Sorts, *Candy Tufts*, Garden *Panſy, Muſcipula, Scabius, Scorpoides, Medica, Holyhocks, Columbines, Bellvidere*, which renew every five or ſix Years, elſe they will degenerate, *&c.*

Continue *new* and freſh *Hot-beds* to entertain ſuch *exotick* Plants as arrive not to their Perfection without them, till the *Air* and *common Earth* be qualified with ſufficient *Warmth* to preſerve them abroad: A *Catalogue* of theſe you have in the former *Month.*

Tranſplant ſuch *Fibrous Roots* as you had not finiſh'd in *March*, (for this is the better Seaſon) as *Violets, Hepatica, Primroſes, Hellebore, Matricaria*, &c. Place *Auricula* Seedlings in the Shade.

Sow *Pinks, Carnations*, which you may continue to trim up, and cleanſe from dead and rotten Leaves, *viz.* your old Roots. Sow *Sweet-williams*, &c. to *flower* next Year: This after Rain.

Set *Lupines*, &c.

Sow *Leucoium* in full Moon, ſprinkle it thin, frequently remove them, and replant in moiſt Weather the following *Spring.*

Sow alſo yet *Pine-kernels, Fir-ſeeds, Phillyrea, Alaternus*, and moſt *Perennial Greens.* Vide *September.*

Now take out your *Indian Tuberoſes*, parting the *Off-ſets*, (but with Care, leſt you break their *Fangs*; for it is from *Off-ſets* only that you may expect *Flowers* in due Time, and not from the Mother *Bulb*) then *pot* them in * *natural* (not *forc'd*) Earth; a Layer of *rich* Mould *beneath*, and *about this* natural *Earth* to nouriſh the *Fibres*, but not ſo as to touch the *Bulbs:* Then plunge your *Pots* in a *Hot-bed* temperately *warm*, and give them no *Water* till they *ſpring*,

* Vide *May.*

and then *ſet* them under a *South-Wall:* In dry Weather *water* them freely, and expect an incomparable *Flower* in *Auguſt.* Thus likewiſe treat the *Narciſſus* of *Japan* (or *Guernſey Lilly*) for a later *Flower*; although that nice *Curioſity*, ſet only in a warm Corner, expoſed to the *South*, without any Removal at all for many Years, has ſometimes proſpered better. · *Sea-ſand* mingled with the Mould more plentifully towards the Surface, exceedingly contributes to the flouriſhing · of this rare *Exotick.* The protuberant *Fangs* of the *Yuca* are to be treated like the *Tuberoſes.* Make much of this *precious* Direction. *April Par.*

Set out and expoſe *Flos Cardinalis:* Slip and ſet *Marums:* Water *Anemonies*, *Ranunculus's* (eſpecially) and Plants in *Pots* and *Caſes*, once in two or three Days, if *Drought* require it.

· *Note*, That even *Anemonies* and *Flowers* of that Claſs ſhould be · diſcreetly prun'd, where they *mat* too thick; as alſo *July-flowers* and · *Carnations*, to produce fair Flowers.

But carefully protect from violent *Storms* of *Rain*, *Hail*, tails of the *Froſts*, and the too parching Darts of the *Sun*, your *Pennach'd Tulips*, *Ranunculus's*, *Anemonies*, *Auricula's*, covering them with *Matraſſes* ſupported on *Cradles* of *Hoops*, which have now in Readineſs. Now is the *Seaſon* for you to bring the choice and tender *Shrubs*, &c. out of the *Conſervatory*; ſuch as you durſt not adventure forth in *March*; let it be in a *fair* Day; only your *Orange-trees* may remain in the *Houſe* till *May*, (ſee the *Caution* there) to prevent all Danger. · Yet if the Weather prove benign, you may adven- · ture about the middle of this Mouth, giving a Refreſhment of Wa- · ter not too cold: About four *Gallons* of heated Water to twenty, · will render it *Blood-warm*, which is the fitteſt Temper upon all Oc- · caſions throughout the Year: Above all Things, beware both of cold · *Spring*, *Pump*, or *ſtagnant ſhaded* Waters; that of the *River* is · beſt, but of *Rain* incomparable. In heat of Summer, let the Wa- · ter ſtand in the *Sun* till it grow tepid: Cold Applications, and all · Extreams are pernicious.

· Now is the *Seaſon* (about the beginning of this *Month*) to prune · and cut off the *Tops* of ſuch *Trees* as have ſhot above four or five · Inches.

You may now *graff* theſe tender Shrubs, *&c.* by *Approach*, viz. *Oranges*, *Limons*, *Pomegranads*, *Jaſmines*, &c.

Now, towards the end of *April*, you may *Tranſplant* and *Remove* your tender *Shrubs*, &c. as *Spaniſh Jaſmines*, *Myrtles*, *Oleanders*, young *Oranges*, *Cyclamen*, *Pomegranads*, &c. But firſt let them begin to *ſprout*; placing them a Fortnight in the *Shade:* But about *London* it may be better to defer this Work till Mid-*Auguſt*: *Vide* alſo *May*, from whence take Directions how to refreſh and trim them. Prune now your *Spaniſh Jaſmine*, within an Inch or two of the *Stock*; but firſt ſee it begin to *ſhoot:* Mow *Carpet-walks*, and ply *Weeding*, &c. · Be diligent in ridding this Work, before they run to *Seed* and · grow *downy*, and ſpeedily to rake away what you pull or *haugh* up, · leſt they take Root, and faſten again, and infect the Ground.

· *Note*, That an half-*ſpit* deep ſtirring, and turning up of the Earth · about your Bordures of *Mural Trees*, &c. is to be preferr'd to *Hand-* · *weeding*, and more expeditious.

May Olit. Towards the end (if the cold *Winds* are paſt) and eſpecially after *Showers*, clip *Phillyrea*, *Alaternus*, *Cypreſs*, *Box*, *Myrtles*, *Barba-Jovis*, and other *tonſile Shrubs*, &c.

· Here to take off a *Reproach* which *Box* may lie under, (other-· wiſe a moſt beautiful and uſeful Shrub, for Edgings, Knots, and · other Ornaments of the Coronary-Garden) becauſe its Scent is not · agreeable to many; if immediately upon *Clipping* (when only it is · moſt *offenſive*) you *water* it, the Smell vaniſhes, and is no more · conſiderable.

Flowers in *Prime*, or yet *laſting.*

Anemonies, *Ranunculus's*, *Auricula Urſi*, *Chamæ-iris*, *Crown Imperial*, *Caprifolium*, *Cyclamen*, *Bell-flower*, *Dens Caninus*, *Fritillaria*, *Gentianella*, *Hypericum frutex*, double *Hepatica's*, *Jacinth* ſtarry, double *Daſies*, *Florence Iris*, tufted *Narciſſus*, white, double, and common *Engliſh* double *Primroſe*, *Cowſlips*, *Pulſatilla*, *Ladies Smock*, *Tulips* medias, *Ranunculus's* of *Tripoly*, white *Violets*, *Musk Grape-flower*, *Geranium*, *Radix Cava*, *Caltha Paluſtris*, *Parietaria Lutea*, *Leucoium*, *Perſian Lilies*, *Pæonies*, double *Jonquils*, *Muſcaria* reverſed, *Cochlearia*, *Perſian Jaſmine*, *Acanthus*, *Lilac*, *Roſemary*, *Cherries*, *Wall-Pears*, *Almonds*, *Abricots*, *Peaches*, *White Thorn*, *Arbor Judæ* bloſſoming, &c.

II

MAY

Hath xxxi Days——long 15^h—09^m
Sun riſes 4^h—25^m——Sets 07^h—35^m

To be done

In the *Orchard* and *Olitory Garden.*

SOW *Sweet Marjoran*, *Baſil*, *Thyme*, hot and *Aromatick Herbs* and *Plants* which are the moſt tender. · Tranſplant *Sampier* to · ſome very warm Expoſure, as under a South-Wall: You cannot pro-· vide too much of this excellent Ingredient to all crude *Sallads.*

Sow *Purſlan*, to have young: *Lettuce*, large-ſided *Cabbage*, painted *Beans*, &c. · Plant out *Cabbages* and *Caully-flowers*, *Naſturces*, · *Bete-Chard*, *Sellery.*

Look carefully to your *Melons*; and towards the end of this *Month* forbear to *cover* them any longer on *Ridges*, either with *Straw* or *Matraſſes*, &c.

· Prune *Fig-trees.*

· You may now give a third Pruning to *Peach-trees*, taking away · and pinching off *unbloſſoming* Branches.

· Break,

· Break, and pull off all crumpl'd dry'd *Leaves* and wither'd Bran- *May Part.*
· ches of *Mural Trees*, and cleanse them from *Snails*, *Caterpillars*,
· &c. every where.

· *Fig-Trees* may be grafted by *Inarching*.

Ply the *Laboratory*, and distill *Plants* for *Waters*, *Spirits*, &c.

Continue *Weeding* before they run to *Seeds*: · Carefully observing
· the Directions of *April* and *July*, as of *extraordinary Importance*
· both for saving *Charge*, Improvement of the *Fruit*, and the neat
· maintaining of your *Garden*.

Now set your *Bees* at full *liberty*, look out often, and expect *Swarms*, &c.

Fruits in *Prime*, or yet *lasting*.

APPLES.

Pippins, *Deux-ans* or *John Apples*, *West-berry Apples*, *Russetting*, *Gilly-flower Apples*, the *Maligar*, &c. *Codlin*.

PEARS.

Great *Kairville*, Winter *Bon-Chrestien*, Black Pear of *Worcester*, *Surrein*, Double *Blossom-Pear*, &c.

CHERRIES, &c.

The *May-Cherry*, *Strawberies*, &c.

II

MAY

Hath xxxi days,——long 15^h—09^m
Sun rises 4^h—25^m——Sets 07^h—35^m

To be done

In the *Parterre* and *Flower-Garden*.

· NOW forasmuch as *Gentlemen* are very inquisitive, when were
· the best and securest Seasons for exposing their *Orange-trees*,
· and more tender *Curiosities*: I give them this for a Rule the most in-
· fallible; That they observe the *Mulberry-tree*, when it begins to put
· forth and open the Leaves, (be it earlier or later) bring your *Oranges*, &c. boldly out of the *Conservatory*; 'tis your only *Season* to *Transplant* and *Remove* them. · Let this be done with Care, if the
· Tree be too ponderous to be lifted *perpendicular* by the Hand alone,
· by applying a *Triangle* and *Pully*, and so with a *Rope*, and a broad
· *Horse-girth* at the end, lapped about the Stem (to prevent galling)
· draw out the Tree with competent Mould adhering to it, having be-
· fore

May. Par. · fore looſened it from the ſides of the *Caſe*, and ſo with eaſe tranſfer it · into another. Ler the *Caſes* be filled with *natural Earth* (ſuch as is taken the firſt half *ſpit* from juſt under the *Turf* of the beſt *Paſture*-ground, in a place that has been well *fother'd* on) mixing it with one part of rotten *Cow-dung*, (· ſome prefer *Horſe-dung*) or very mellow *Soil* ſcreen'd, and prepar'd ſome time before; if this be too *ſtiff*, ſift a little *Lime* diſcreetly with it, or rather *Sea-coal Aſhes*, or the rotten Sticks and Stuff found in hollow *Willows*; and if it want binding, a little *Loamy* Earth: Then *cutting* the too thick and extravagant *Roots* a little, eſpecially at bottom, ſet your *Plant*, but not too deep; rather let ſome of the *Roots* appear. · If you ſee cauſe to form the · *Heads* of your Trees, by cutting off any conſiderable *Branch*, co- · ver the Wound or *Amputation* with a Mixture of *Bees-wax*, *Roſin* · and *Turpentine*: Of the *Wax* and *Turpentine* each one Ounce, of · *Roſin* two; ſome add a little *Tallow*. Laſtly, ſettle it with tempe- rately enrich'd *Water*, (ſuch as is impregnated with *Neat* and *Sheeps-dung* eſpecially, ſet and ſtirred in the *Sun* ſome few days before; but be careful not to drench them too much at firſt; but giving it by degrees day after day, without wetting the *Stem* or *Leaves*:) having before put ſome *Rubbiſh* of *Lime-ſtones*, *Pebbles*, *Shells*, *Faggot-ſpray*, or the like, at the bottom of the *Caſes*, to make the *Moiſture* paſſage, and keep the *Earth* looſe, for fear of rotting the *Fibres*: See *November*. Then ſet them in the *Shade* for a Fortnight, and afterwards expoſe them to the *Sun*; · yet not where it is too ſcorching by the Refle- · ction of *Walls*, but rather where they may have the gentle Shade of · diſtant *Trees*, or a *Paliſade thin Hedge*, or *Curtain* drawn before · them, which may now and then be *ſprinkl'd* with Water, as *Seamen* · do their Sails. The *Morning Sun*, till about three in the Afternoon · is beſt. Be not yet over-haſty in giving them the full *Sun*; for in · your diſcreet acquainting them with this *Change*, conſiſts their Proſ- · perity during all the *Summer* after. See *Diſc. of Earth*, p. 37.

Give now alſo all your *hous'd Plants* (ſuch as you do not think requiſite to take out) freſh *Earth* at the *ſurface*, in place of ſome of the old *Earth* (a hand depth or ſo) and looſening the reſt with a *Fork*, without wounding the *Roots*: Let this be of excellent rich * *Soil*, ſuch as is throughly *conſumed*, and will *ſift*, that it may waſh in the *vertue* and comfort the *Plant*: *Bruſh* and *cleanſe* them likewiſe from the *Duſt* contracted during their encloſure: · If you do not *Tranſplant* or · *Remove* them about the middle of the Month, take off the *Surface*- · *earth* about an Inch or two deep, and put *Cow-dung* of the laſt Years · Preparation in place of it, covering it over with the ſame Mould: · See *July*. But now for a *Compendium*, and to gratify *Gentlemen* · with what is moſt *effectual*, as well as eaſy; let them always be pro- · vided with a plentiful Stock of old *Neats-dung*, well air'd and ſtirr'd · for two Years: Then with *Three* Parts of this, and *One* of the bot- · tom of the *Tanner*'s Pit, (with ſome Addition of a light *under-turf* · Mould) they will be provided with an incomparable *Compoſition*, not · only for their *Orange-trees*, but for all other ſorts of *Verdures*: But · after all, where there is to be found a *natural Earth*, with an Eye · of *Loam* in it (ſuch as is proper for moſt Flowers, *Carnations* eſpe- · cially) *mixing it with well-conſumed* Horſe-dung, *and ſomething of* · *a drying nature, ſuch as is the Aſhes of* Sea-coal, *in due proportion* · *to keep it looſe and from clogging, you need ſeek for nothing more.*

* Vide *July*.

· Neither ſhall they need much to trim the *Roots*, (unleſs they find · them exceedingly matted and ſtragling) or put ſo much looſe Traſh · at the bottom of their Caſes; but it were good to *change* them once · in three or four Years into large ones, if they proſper. The *leaſt* · Size of *Caſes* ought to be of ſixteen *Inches*, the *middle* Sort of two · *Foot*, and the *largeſt* near a *Yard Diameter*, ſupported from the · Ground with *Knobs* or Feet four Inches. *May Par.*

Theſe laſt Directions have till now been kept as conſiderable Secrets *amongſt our* Gardiners: Vide *Auguſt* and *September*.

Shade your *Carnations* and *Gilly-flowers* after *Mid-day* about this *Seaſon*: · You may likewiſe ſow *Clove-Gilly-flowers*, New-*Moon*. Plant alſo your *Stock-Gilly-flowers* in Beds, Full-*Moon*.

Continue watering *Ranunculus's*. · Tranſplant forth your *Amaranthus's*, where you would have them ſtand: Sow *Antirrhinum*; or you may ſet it.

Gather what *Anemony-ſeed* you find ripe, and that is worth ſaving; preſerve it very dry: · You may plant *Single Anemonies*. · Prune · *Jaſmine* cloſe, within half an *Inch*.

Cut likewiſe the *Stalks* of ſuch *Bulbous Flowers* as you find dry.

Towards the *end* take up thoſe *Tulips* which are dry'd in the *Stalk*; covering what you find to lie *bare* from the *Sun* and *Showers*: · And · if you find any to be *Canker'd*, bury them immediately in the Earth · again, before they be dry: 'Tis the beſt Cure.

Flowers in *Prime*, or yet *laſting*.

LATE ſet *Anemouies* and *Ranunculus omn. gen. Anapodophylon*, *Blattaria*, *Chamæ-iris*, *Auguſtifol. Cyanus*, *Cytiſus*, *Maranthe*, *Cyclamen*, *Helleborine*, *Columbines*, *Caltha Paluſtris*, double *Cotyledon*, *Digitalis*, *Fraxinella*, *Gladiolus*, *Geranium*, *Horminum Creticum*, yellow *Hemerocallis*, ſtrip'd *Jacinth*, early *Bulbous Iris*, *Aſphodel*, yellow *Lillies*, *Lychnis*, *Jacea*, *Bellis*, double, white and red, *Millefolium luteum*, *Phalangium Orchis*, *Lilium Convallium*, *Span. Pinks*, *Deptford Pinks*, *Roſa* common, *Cinnamon*, *Guelder*, and *Centifol.* &c. *Oleaſter*, *Cherry-bay*, *Trachelium*, *Cowſlips*, *Heſperis*, *Antirrhinum*, *Syringa's*, *Sedums*, *Tulips Serotin*, &c. *Valerian*, *Veronica* double and ſingle, *Musk Violets*, *Ladies Slipper*, *Stock-Gilly-flowers*, *Spaniſh Nut*, *Star-flower*, *Chalcedons*, ordinary *Crowfoot*, red *Martagon*, *Bee-flowers*, *Companella's* white and blue, *Perſian Lilly*, *Honey-ſuckles*, *Bugloſs*, *Homer's Moly*, and the white of *Dioſcorides*, *Panſis*, *Prunella*, purple *Thalictrum*, *Siſymbrium* double and ſimple, *Leucoium bulboſum ſerotinum*, *Peonies*, *Sambucus*. *Roſemary*, *Stæchas*, *Sea-Narciſſus*, *Barba Jovis*, *Laurus*, *Satyrion*, *Oxyacanthus*, *Tamariſcus*, *Apple Bloſſoms*, &c.

June Olit.

♋

JUNE

Hath xxx Days,—long 16^h—17^m
Sun riſes 3^h—51^m—Sets 08^h—09^m

To be done

In the *Orchard* and *Olitory Garden.*

SOW *Lettuce*, *Chervil*, *Radiſh*, &c. to have young and tender *Salleting*.

About the midſt of *June* you may Inoculate *Peaches*, *Abricots*, *Cherries*, *Plums*, *Apples*, *Pears*, &c. On what *Stocks*, ſee *November*.

You may now alſo, (or in *May* before) cleanſe *Vines* of exuberant *Branches* and *Tendrels*, cropping (not cutting) and ſtopping the ſecond *Joint*, or immediately before the *Fruit*, and ſome of the under Branches which bear no *Fruit*; eſpecially in young *Vineyards*, when they firſt begin to bear, and thence forwards; binding up the reſt to *Props*. · More ample Directions for the *Nurſery* this *Month*'s beginning. See *Diſc. of Earth*, p. 14.

Gather *Herbs* in the *Full* to keep dry; they keep and retain their Virtue and ſweet Smell, · provided you take the ſame Care as you do · in *Hay*, that you expoſe them not in too thin, but competent Heaps, · which you may turn and move till they be reaſonably dry, not brit· tle; and the ſooner it be diſpatch'd, the better: The *Gardiner* there· fore ſhould attend it himſelf, for there is very great difference in · the Virtue of Plants, according as they are dry'd.

· To preſerve the *Colour* of Flowers or Herbs, they ſhould be dry'd · in the *Shade*; but they will be apt to contract Muſtineſs, unleſs ſhew· ed to the *Sun* a little.

Now is your Seaſon to diſtill *Aromatick Plants*, &c.

Water lately planted *Trees*, and put moiſt and half rotten *Fearn*, &c. about the Foot of their Stems, having firſt clear'd them of Weeds, and a little ſtirred the Earth.

· Now becauſe the exceſſive Scorchings of this and the two follow· ing Months (and not ſeldom the *Winters* alſo) do frequently en· danger the untimely falling both of *Bloſſom* and *Fruit* before their · Maturity; place a Veſſel of impregnated Water near the Stem of the · Tree, and lap a reaſonable long Piece of Flannel, or other Woollen · or Linnen Clout about it, letting one end thereof hang in the Wa· ter, by which the Moiſture aſcending, will be ſuck'd through the very · *Bark*, and conſequently nouriſh and invigorate the Tree to repro· duce its former *Verdure*: The *Water* is to be ſupply'd as you find it · convenient, and no longer, leſt it ſob your Stem too much. This · manner of refreſhing is more to be preferr'd, than by ſuffering it to · drop only upon the Earth (which yet in other Occaſions is profita· ble) *per lingulam*; which, if too plentifully, endangers the chilling · and rotting of the *Fibres*.

· *Note*,

Note, That *Sick Trees*, as *Orange*, &c. frequently impair'd by *Removes*, *Carriage*, in handling, and other Accidents, are many times recover'd by a *Milk-diet*; that is, *diluting* it with a Portion of *Water* diſcreetly adminiſter'd, as you find Amendment: Sometimes alſo by plunging them in the *Hot-bed*; or by letting the *Tree* down into a *Pit* of four or five Foot Depth, covering the *Head*, and the reſt of the *Tree* above, with a *glaz'd Frame*: Either of theſe *Remedies* profit according as the Plant is affected, wanting Warmth or Nouriſhment. *June Olit.*

Ply *Weeding* as in the former Month.

Look to your *Bees* for *Swarms* and *Caſts*; and begin to deſtroy *Inſects* with *Hoofs*, *Canes*, and tempting *Baits*, &c. Gather *Snails* after *Rain*, &c.

Fruits in *Prime*, or yet *laſting*.

APPLES.

Uniting (firſt ripe) *Pippins*, *John-Apples*, *Robillard*, Red *Fennouil*, &c. French.

PEARS.

The *Maudlin* (firſt ripe,) *Madera*, *Green-Royal*, St. *Laurence Pear*, &c.

CHERRIES, &c.

Duke, *Flanders*, *Heart*, { Black. Red. White.

Lukeward, early *Flanders*, the *Common Cherry*, *Spaniſh* Black, *Naples Cherries*, &c.

Rasberries, *Corinths*, *Strawberries*, *Melons*, &c.

JUNE

Hath xxx Days,——long 16^h—17^m
Sun riſes 3^h—51^m——Sets 08^h—09^m

To be done

In the *Parterre* and *Flower-Garden*.

TRanſplant *Autumnal Cyclamens* now, if you would change their Place; otherwiſe let them *ſtand*. Take up *Iris Chalcedon*.

Gather the ripe *Seeds* of *Flowers* worth the ſaving, as of the choiceſt *Oriental Jacinth*, *Narciſſus*, (the two leſſer, pale ſpurious *Daffodils*

June Par. *dils* of a whitiſh green, often produce Varieties) *Auricula's*, *Ranunculus's*, &c. and preſerve them dry: Shade your *Carnations* from the Afternoon *Sun*.

You may now begin to lay your *Gilly-flowers*. Sow ſome *Annuals* to flower in the later Months.

Take up your rareſt *Anemonies* and *Ranunculus's* after Rain (if it come ſeaſonable, not before) the *Stalk* wither'd, and dry the *Roots* well: This about the end of the *Month*. In Mid-*June* inoculate *Jaſmine*, *Roſes*, and ſome other rare *Shrubs*. Sow now alſo ſome *Anemony Seeds*. Take up your *Tulip Bulbs*, burying ſuch immediately as you find naked upon your *Beds*; or elſe *plant* them in ſome cooler Place; and *refreſh* over-parch'd *Beds* with Water. Water your *Pots* of *Narciſſus* of *Japan* (that precious Flower) &c. Stop ſome of your *Scabious's* from running to *Seed* the firſt Year, by now removing them, and next Year they will produce excellent *Flowers*. Alſo you may now take up all ſuch *Plants* and *Flower-Roots* as endure not well out of the Ground, and *replant* them again immediately; ſuch as the early *Cyclamen*, *Jacinth Oriental*, and other *bulbous Jacinths*, *Iris*, *Fritillaria*, *Crown Imperial*, *Martagon*, *Muſcaris*, *Dens Caninus*, &c. The *Slips* of *Myrtle* ſet in ſome *cool* and *moiſt* Place, do now frequently take *Root*: Alſo *Cytiſus lunatus* will be multiplied by *Slips* in a moiſt Place, ſuch as are an *Handful long* of that *Spring*, but neither by *Seeds* or *Layers*. Look now to your *Aviary*; for now the *Birds* grow *ſick* of their *Feathers*; therefore aſſiſt them with *Emulſions* of the *cooler Seeds bruiſed* in their *Water*, as *Melons*, *Cucumbers*, &c. Alſo give them *Succory*, *Beets*, *Groundſel*, *Chickweed*, freſh *Gravel*, and *Earth*, &c.

Flowers in *Prime*, or yet *laſting*.

Amaranthus, *Anemonies* ſingle, *Antirrhinum*, *Aſphodel*, *Campanula*, *Convolvolus*, *Cyclamen*, *Clematis Panonica*, *Cyanus*, *Plattaria*, *Digitalis*, *Gladiolas*, *Hedyſarum*, *Geranium*, *Horminum Creticum*, *Hieracium*, *Heſperis*, *Bulbous Iris*, and divers others, *Lychnis var generum*, *Martagon* white and red, *Millefolium* white and yellow, *Naſturtium Indicum*, *Nigella*, *Aſter Atticus*, *Helleborè*, *Alb. Gentiana*, *Trachelium*, *Ficus Indica*, *Fraxinella*, Shrub *Nightſhade*, *Jaſmines*, *Honey-ſuckles*, *Geniſta Hiſp.* *Carnations*, *Pinks*, *Armerius*, *Ornithogalum*, *Panſy*, *Phalangium Virginianum*, *Larksheel* early, *Philoſella*, *Roſes*, *Thlaſpi Creticum*, &c. *Veronica*, *Viola Pentaphyl.* *Campions* or *Sultans*, *Mountain Lillies* white, red; double *Poppies*, *Palm Chriſti*, *Stock-Gilly-flowers*, *Corn-flag*, *Hollyhoc*, *Muſcaria*, *Serpillum Citratum*, *Phalangium Allobrogicum*, *Oranges*, *Roſemary*, *Gelder*, and *Cynomon Roſes*, *Tuber-roſe*, *Lentiſcus*, *Pomegranade*, the *Lime-tree*, &c.

♌

JULY

Hath xxxi days,——long 15^h—59^m
Sun riſes 4^h—00^m— Sets 08^h—01^m

To be done

In the *Orchard* and *Olitory Garden*.

SOW *Lettuce*, *Radiſh*, &c. to have tender *Salleting*.

Sow *later Peaſe* to be ripe ſix Weeks after *Michaelmas*.

Water young planted *Trees*, and *Layers*, &c. and re-prune now *Abricots* and *Peaches*, ſaving as many of the *young* likelieſt *Shoots* as are well plac'd; for the now *Bearers* commonly periſh, the *new ones* ſucceeding. Cut *cloſe* and *even*, purging your *Wall-Fruit* of ſuperfluous Leaves which hinder from the *Sun*; but do it diſcreetly, as alſo *Vines*.

It were now fit (and eſpecially when the *Fruit* is either *forming*, or requires *filling*, and before, if the Seaſon be very dry) to give plentiful Refreſhments to your *Mural* Fruit-Trees, pouring it leiſurely into Holes made with a wooden-pointed *Stake*, at competent diſtance from the *Stem*, and ſo as not to touch or wound any of the *Roots*: You may leave the ſhort Stakes in the Holes for a while, or fill them with Mould again: Thus may you feed your *Vines* with *Blood*, ſweet, and mingled with Water, *&c.* But *this*, and all other *Summer Refreſhings*, is only to be done early in the Morning, or late in the *Evenings*.

You may now alſo begin to *Inoculate*.

Let ſuch *Olitory-Herbs* run to *Seed* as you would ſave.

Towards the *latter end* viſit your *Vineyards* again, *&c.* and *ſtop* the exuberant *Shoots* at the *ſecond Joint* above the *Fruit* (if not finiſh'd before;) but not ſo as to expoſe it to the *Sun*, without ſome Umbrage.

Remove long ſided *Cabbages* planted in *May*, to head in *Autumn*; 'tis the beſt *Cabbage* in the World. Remember to cut away all rotten and putrify'd Leaves from your *Cabbages*, which elſe will infect both *Earth* and *Air*.

Now begin to ſtreighten the entrance of your *Bees* a little; and help them to kill their *Drones*, if you obſerve too many; ſetting the new-invented *Cucurbit-Glaſſes* of *Beer* mingled with *Honey*, to entice the *Waſps*, *Flies*, &c. which waſte your *Store*. Alſo hang *Bottles* of the ſame *Mixture* near your *Red Roman Nectarines*, and other tempting *Fruits* and *Flowers*, for their deſtruction; elſe they many times invade your beſt *Fruit*. Set therefore up *Hoofs* of *Neats-feet* for the *Earwigs*, and remember to cleanſe and ſhake them out at *Noon*, when they conſtantly repair for the Shade: They are curſed *Devourers*; nor ought you to be leſs diligent to prevent the *Ants*, which above all

July. Par. · all invade the *Orange-Flower*, by caſting ſcalding Brine on their · *Hills*, and other Receptacles.

Look now alſo diligently under the *Leaves* of *Mural Trees* for the *Snails*; they ſtick commonly ſomewhat *above* the *Fruit*: Pull not *off* what is *bitten*, for then they will certainly begin *afreſh*.

· Have ſtill an Eye to the *weeding* and *cleanſing* Part; begin the · Work of *Haughing* as ſoon as ever they begin to peep; you will rid · more in a few *Hours*, than afterwards in a whole Day; whereas neglecting it till they are ready to ſow themſelves, you do but ſtir and prepare for a more numerous Crop of theſe *Garden-Sins*: I cannot too often inculcate and repeat it.

Fruits in *Prime*, or yet *laſting*.

APPLES.

Deux-ans, *Pippins*, Winter *Ruſſeting*, *Andrew Apples*, *Cinnamon Apple*, red and white *Juneting*, the *Margaret-Apple*, &c.

PEARS.

The *Primat*, *Ruſſet Pears*, *Summer Pears*, green *Cheſil Pears*, *Orange Pear*, *Cuiſſe Madame*, *Pearl Pear*, &c.

CHERRIES.

Carnations, *Morella*, *Great-bearer*, *Morocco Cherry*, the *Egriot*, *Bigarreux*, &c.

PEACHES.

Nutmeg, *Iſabella*, *Perſian*, *Newington*, *Violet*, *Muſcat*, *Rambouillet*.

PLUMS, &c.

Primordial, *Myrobalan*; the red, blue, and amber *Violets*, *Damaſc. Denny Damaſc. Pear-Plum*, *Damaſc. Violet* or *Cheſon-Plum*, *Abricot-Plum*, *Cinnamon-Plum*, the *King's-Plum*, *Spaniſh*, *Morocco-Plum*, *Lady Eliz. Plum*, *Tawny*, *Damaſcene*, &c. *Figs*.

Rasberries, *Gooſeberries*, *Corinths*, *Strawberries*, *Melons*, &c.

♌

JULY

Hath xxxi days,——long 15^h—59^m

Sun riſes 4^h—0^m——Sets 08^h—01^m

To be done

In the *Parterre* and *Flower-Garden*.

SLIP *Stocks*, and other *lignous Plants* and *Flowers*. From henceforth to *Michaelmas* you may alſo lay *Gilly-flowers* and *Carnations* for *Increaſe*, leaving not above *two* or *three Spindles* for *Flowers*,

Flowers, and nipping off ſuperfluous *Buds*, with *Supports*, *Cradles*, *Canes*, or *Hoofs*, to eſtabliſh them againſt *Winds*, and deſtroy *Ear-wigs*. *July Par.*

The *Layers* will (in a *Month* or *Six Weeks*) ſtrike *Root*, being *planted* in a *light loamy Earth*, mixed with excellent *rotten Soil*, *ſifted*: Plant ſix or eight in a *Pot* to ſave *Room* in *Winter*: Keep them well from too much *Rains*; yet water them in drought, ſparing the Leaves: If it prove too wet, lay your Pots ſide long; but *ſhade* thoſe which *blow* from the Afternoon *Sun*, as in the former *Month*.

Yet alſo you may lay *Myrtles*, *Laurels*, and other curious *Greens*.

Water young planted *Shrubs* and *Layers*, &c. as *Orange-Trees*, *Myrtles*, *Granades*, *Amomum* eſpecially, which *Shrub* you can hardly *refreſh* too often, and it requires abundant *Compoſt*; as do likewiſe both the *Myrtle* and *Granade*-Trees; therefore whenever you trim their *Roots*, or change their *Earth*, apply the richeſt *Soil* (ſo it be ſweet and well conſum'd) you can to them, *&c.* Clip *Box*, *&c.* in *Parterres*, *Knots*, and *Compartiments*, if need be, and that it grow out of *order*; do it after *Rain*.

· Note, *That the* Granade *flouriſhes beſt in Earth not over-rich.*

Graff by *Approach*, *Inarch*, and *Inoculate Jaſmines*, *Oranges*, and other your choiceſt *Shrubs*.

Take up your early *Autumnal Cyclamen*, *Tulips*, and *Bulbs* (if you will *remove* them, *&c.*) before mentioned; *Tranſplanting* them *immediately*, or a *Month* after, if you pleaſe, and then cutting off and trimming the *Fibres*, ſpread them to the *Air* in ſome *dry* Place. · But · ſeparate not the *Off-ſets* of *Tulips*, &c. until the *Mother Bulb* be · fully dry.

Gather *Tulip-Seed*, if you pleaſe; but let it lie in the *Pods*.

Gather now alſo your early *Cyclamen-Seed*, and ſow it preſently in *Pots*.

Remove ſeedling *Crocus*'s ſowed in *September* conſtantly at this *Seaſon*, placing them at wider Intervals till they begin to bear.

Likewiſe you may *take up* ſome *Anemonies*, *Ranunculus's*, *Crocus*, *Crown Imper.* *Perſian Iris*, *Fritillaria*, and *Colchicums*; but plant the three laſt as ſoon as you have taken them up, as you did the *Cyclamens*; or you may ſtay till *Auguſt* or *September* e'er you take them up and replant *Colchicums*.

Remove now *Dens Caninus*, &c.

Take up your *Gladiolus* now yearly, the Blades being dry, or elſe their *Off-ſets* will poiſon the Ground.

Latter end of *July*, · treat your *Orange-Trees*, &c. as directed in · *May*, by refreſhing the Surface of the *Caſes*, to nouriſh and keep the · Fruit cool and in vigour. *Sift* your *Beds* for *Off-ſets* of *Tulips*, and all other *bulbous Roots*; alſo for *Anemonies*, *Ranunculus's*, &c. which will prepare it for *replanting* with ſuch things as you have already in *Pots* to plunge, or ſet in the *naked* Earth till the next *Seaſon*; as *Amaranths*, *Canna Ind.* *Mirabile Peruv.* *Capſicum Ind.* *Naſturtium Ind.* &c. that they may not lie empty and diſfurniſhed.

You may ſow ſome *Anemonies*, keeping them temperately moiſt.

Continue to *cut off* the wither'd *Stalks* of your lower *Flowers*, &c. and all others, covering with *Earth* the *bared* Roots, *&c.*

Now (in the *drieſt Seaſon*) with *Lime*, *Brine*, *Pot-Aſhes*, · (which · is the very beſt of all; becauſe being caſt on fine *Turf* it deſtroys the · *Worms*, and improves the *Graſs*, which moſt other Applications mortify)

July Par. mortify) and *Water*, or a *Decoction* of *Tobacco Refuſe*, water your *Gravel-Walks*, &c. to deſtroy both *Worms* and *Weeds*, of which it will *cure* them for ſome *Years*.

Flowers in *Prime*, or yet *laſting*.

Amaranthus, *Aſphodel*, *Antirrhinum*, *Campanula*, *Clematis*, *Cyanus*, *Convolvolus*, *Sultana*, *Veronica* purple and odoriferous; *Digitalis*, *Eryngium Planum*, *Ind. Phaſeolus*, *Geranium Triſte*, *Nocte Olens*, and *Creticum*, *Gladiolus*, *Gentiana*, *Heſperis*, *Nigella*, *Hedyſarum*, *Fraxinella*, *Lychnis Chalcedon*, *Jacea* white and double, *Naſturt. Ind. Millefolium*, *Musk-roſe*, *Flos Africanus*, *Thlaſpi Creticum*, *Veronica mag. & parva*, *Volubilis*, *Balſam-Apple*, *Holy-hoc*, *Corn flower*, *Alkekengi*, *Lupines*, *Scorpion-graſs*, *Caryophyllata omn. gen. Stock-Gilly-flower*, *Scabioſa*, *Mirab. Peru Spartum Hiſpan.* Monthly *Roſe*, *Jaſmine*, *Indian Tuberous Jacinth*, *Limonium*, *Linaria Cretica*, *Panſies*, *Prunella*, *Delphinium*, *Phalangium*, *Periploca Virgin*, *Flos Paſſionis*, *Flos Cardinalis*, *Yucca*, *Oranges*, *Amomum Plinii*, *Oleanders* red and white, *Agnus Caſtus*, *Arbutus*, *Olive*, *Liguſtrum*, *Tilia*, &c.

AUGUST

Hath xxxi days,——long 14^h—33^m
Sun riſes 4^h—43^m——Sets ☉7^h—17^m

To be done

In the *Orchard* and *Olitory Garden*.

Inoculate now *early*, if before you began not, and gather your *Bud* of that Year. Let this Work be done before you remove the *Stocks*.

Prune off yet alſo ſuperfluous *Branches* and *Shoots* of this *ſecond Spring*; but be careful not to expoſe the *Fruit* without Leaves ſufficient to *skreen* it from the *Sun*; *furniſhing* and *nailing* up what you will ſpare to cover the defects of your *Walls*. Continue yet to cleanſe your *Vines* from exuberant *Branches* that too much hinder the *Sun*. Do this diſcreetly, leſt the *Fruit* ſhrivel, being too much expos'd.

Pull up the *Suckers*.

Clip *Roſes* now done bearing.

Sow *Radiſh*, eſpecially the *Black*, to prevent running up to *Seed*, pale tender *Cabbages*, *Cawly-flowers* for *Winter Plants*, *Corn-ſallet*, *Marigolds*, *Lettuce*, *Carrots*, *Parſnips*, *Turnips*, *Spinage*, *Onions*; alſo curl'd *Endive*, *Angelica*, *Scurvy-graſs*, &c.

· Strip or tread down *Onions*, and ſtrip the Leaves of *Beets*, *Car-* *Aug. Olit.*
· *rots*, *Parſnips*, &c. to improve the *Roots*.

· *Note*, That if *Plants* run up to *Seed* over-haſtily, (as they will · be apt to do, being early ſown, and the Weather hot) pull their · *Roots* a little out of the Ground, and lay them along in it ſomewhat · *ſlanting*, and clap ſome *Mould* about them.

· *Cauly-flowers* over-ſpeeding to *pome* and head (before they have · quite perfected their Heads) ſhould be quite eradicated, and may be · buried in a *Cellar*, or ſome cool Place, both *Root* and *Stalk* up to · the very *Head*, and ſo they will furniſh goodly *Heads* without · *Sun*, or expoſure abroad.

Likewiſe now pull up ripe *Onions* and *Garlick*, &c.

Towards the *end* ſow *Purſlan*, *Chard-beet*, *Chervil*, &c.

Tranſplant ſuch *Lettuce* as you will have abide all *Winter*.

Gather your *Olitory-Seeds*, and clip and cut all ſuch *Herbs* and *Plants* within one *handful* of the *Ground* before the *Full*. Laſtly,

Unbind and releaſe the *Buds* you *inoculated*, if taken, *&c.* likewiſe ſtop and prune them.

· Pluck up *Strawberry Runners*, extirpate the tall Stalks, and · purge the old *Tufts* and *Leaves*.

Now *vindemiate*, and take your *Bees* towards the expiration of this *Month*; unleſs you ſee Cauſe (by reaſon of the *Weather* or *Seaſon*) to defer it till Mid-*September*: But if your *Stocks* be very *light* and weak, begin the earlier.

Make your Summer *Perry* and *Cider*. · See *Diſcourſe of Cider* at · the end of our *Pomona*.

Fruits in *Prime*, or yet *laſting*.

APPLES.

THE *Ladies Longing*, the *Kirkham* Apple, *John* Apple; the *Seaming* Apple, *Cuſhion* Apple, *Spicing*, *May-flower*, *Sheeps Snout*.

PEARS.

Windſor, *Sovereign*, *Orange*, *Bergamot*, *Slipper* Pear, *Red Catherine*, King *Catherine*, *Denny* Pear, *Pruſſia* Pear, Summer *Poppering*, *Sugar* Pear, *Lording* Pear, *&c.*

PEACHES and ABRICOTS.

Roman Peach, *Man* Peach, *Quince* Peach, *Rambouillet*, *Musk* Peach, *Grand Carnation*, *Portugal* Peach, *Crown* Peach, *Bourdeaux* Peach, *Lavar* Peach, *Maudlen*, *Minion* Peach, the Peach *Des Pot*, *Savoy Malacoton*, which laſts till *Michaelmas*.

NECTARINES.

The *Muroy* Nectarine, *Tawny*, Red *Roman*, little *Green* Nectarine, *Cluſter* Nectarine, *Yellow* Nectarine.

PLUMS.

Imperial, Blue, White *Dates*, Yellow *Pear-Plum*, Black *Pear-Plum*, White *Nutmeg*, late *Pear-Plum*, Great *Anthony*, *Turkey-Plum*, the *Jane-Plum*.

Other Fruit.

Cluſter-Grape, *Muſcadine*, *Corinths*, *Cornelians*, *Mulberries*, *Figs*, *Filberts*, *Melons*, &c.

♌

AUGUST

Hath xxxi Days,——long $14^h—33^m$
Sun riſes $4^h—43^m$——Sets $07^h—17^m$

To be done

In the *Parterre* and *Flower-Garden*.

NOW (and not till now, if you expect Succeſs) is the juſt Seaſon for the budding of the *Orange-Tree*: *Inoculate* therefore at the Commencement of this *Month*, upon *Seedling Stocks* of four Years Growth. And to have excellent *Buds*, cut off the *Head* of ſome very old *Orange-Tree* of a good *Kind*, which making large *Shoots*, will furniſh the beſt.

Now likewiſe take up your *Bulbous Iris*; or you may ſow their *Seeds*, as alſo thoſe of *Larks-heel*, *Candy-tufts*, *Columbines*, *Iron-colour'd Fox-gloves*, *Holly-hocks*, and ſuch Plants as endure *Winter*, and the approaching *Seaſons*.

Plant ſome *Anemony* Roots to have *Flowers* all *Winter*, if the *Roots* eſcape; and take up your *Seedlings* of laſt Year, which now tranſplant for bearing: Alſo plant *Dens Caninus*, *Autumnal Crocus*, and *Colchicums*. *Note*, That *Engliſh Saffron* may be ſuffer'd to ſtand for Increaſe to the *third* or *fourth* Year without removing.

You may now ſow *Narciſſus*, and *Oriental Jacinths*, and replant ſuch as will not do well out of the *Earth*; as *Fritillaria*, *Hyacinths*, *Martagon*, *Dens Caninus*, *Lillies*.

Gilly-flowers may yet be *ſlipp'd*.

Continue your taking up of *Bulbs*, dry them, and lay them up; *Lillies*, &c. of which before.

Gather from Day to Day your *Alaternus* Seed as it grows black and ripe, and ſpread it to *ſweat* and *dry* before you put it up; therefore *move* it ſometimes with a *Broom* or *Whisk*, that the *Seeds* clog not together, unleſs you will ſeparate it from the *Mucilage*, for then you muſt a little bruiſe it wet; waſh and dry them in a Cloth.

Water well your *Balſamine fæm.*

Moſt

Moſt other *Seeds* may now likewiſe be gathered from *Shrubs*, as you find them ripen. *Aug. Par.*

About Mid-*Auguſt* tranſplant *Auricula's*, dividing old and luſty *Roots*; alſo prick out your *Seedlings:* They beſt like a *loamy Sand*, or light moiſt *Earth*; yet rich and ſhaded: You may likewiſe ſow *Auricula.*

Now, towards the latter end, you may ſow *Anemony* Seeds, *Ranunculus's*, &c. lightly cover'd with fit Mould in *Caſes*, ſhaded, and frequently *refreſhed:* Alſo *Cyclamen*, *Jacinths*, *Iris*, *Hepatica*, *Primroſes*, *Fritillaria*, *Martagon*, *Fraxinella*, *Tulips*, &c. but with *Patience*, for ſome of them, becauſe they *flower* not till *three*, *four*, *five*, *ſix* and *ſeven* Years after, eſpecially the *Tulips*, · unleſs you ſow the · *Seeds* ſo *ſhallow*, that they cannot penetrate or *ſink* above an Inch or · two; which is a *Secret:* Therefore diſturb not their *Beds* (· but hand-weed them) and let them be under ſome *warm* Place, *ſhaded* yet, till the *Heats* are paſt, leſt the *Seeds* dry; only the *Hepatica's* and *Primroſes* may be ſow'd in ſome leſs expos'd *Beds.*

Now, about *Bartholomew-tide*, is the only *ſecure Seaſon* for *removing* and *laying* your *perennial Greens*; *Oranges*, *Limons*, *Myrtles*, *Phillyreas*, *Oleanders*, *Jaſmines*, *Arbutus*, and other rare *Shrubs*, as *Pomegranads*, *Monthly Roſes*, and whatever is moſt obnoxious to *Froſts*; taking the *Shoots* and *Branches* of the paſt *Spring*, and pegging them down in a very rich *Earth*, and *Soil* perfectly conſum'd, *watering* them upon all Occaſions during the *Summer*; and by this time *Twelve-month*, they will be ready to *remove*, *tranſplanted* in fit Earth, ſet in the *Shade*, and kept moderately *moiſt*, not *overwet*, leſt the young *Fibres* rot; after *Three* Weeks ſet them in ſome more airy Place, but not in the *Sun* till *Fifteen* Days more: *Vide* our *Obſervations* in *April* and *May*, for the reſt of theſe choice *Directions.*

Flowers in *Prime*, or yet *laſting.*

Amaranthus, *Anagallis*, *Luſitanica*, *Aſter Atticus*, *Blattaria*, *Spaniſh Bells*, *Belvedere*, *Carnations*, *Campanula*, *Clematis*, *Cyclamen Vernum*, *Datura Turcica*, *Eliochryſon*, *Eryngium planum & Amethyſtinum*, *Geranium Creticum*, and *Triſte*. Yellow *Stocks*, *Hieracion minus*, *Alpeſtre*, *Tuberoſe Hyacinth*, *Limonium*, *Linaria Cretica*, *Lychnis*, *Mirabile Peruvian*, Yellow *Milleſolium*, *Naſtur. Ind.* Yellow Mountain *Hearts-eaſe*, *Maracoc*, *Africanus Flos*, *Convolvolus's*, *Scabious*, *Aſphodils*, *Delphinium*, *Lupines*, *Colchicum*, *Leucoion*, *Autumnal Hyacinth*, *Holly-hock*, *Star-wort*, *Heliotrop*, *French Marigold*, *Daiſies*, *Geranium nocte olens*, Common *Panſies*, *Larks-heels* of all Colours, *Nigella*, *Helleborus*, *Balſamin. fœm. Lobel's Catch-fly*, *Thlaſpi Creticum*, *Roſemary*, *Musk Roſe*, *Monthly Roſe*, *Oleanders*, *Spaniſh Jaſmine*, Yellow *Indian Jaſmine*, *Myrtles*, *Oranges*, *Pomgranads* double and ſingle Flowers, Shrub *Spiræa*, *Agnus Caſtus*, the *Virginian Martagon*, *Malva arboreſcens*, &c.

SEP-

SEPTEMBER

Hath xxx Days,——long 12^h—37^m
Sun riſes 5^h—41^m——Sets 06^h—19^m

To be done

In the *Orchard* and *Olitory-Garden.*

GAther now, (if ripe) your *Winter-Fruits*, as *Apples*, *Pears*, *Plums*, &c. to prevent their falling by the great *Winds*: Alſo gather your *Wind-falls* from Day to Day: Do this Work in *dry* Weather.

Releaſe Inoculated *Buds*, or ſooner, if they pinch. You may yet Inoculate *Peaches*.

Sow *Lettuce*, *Radiſh*, *Spinage*, *Chervil*, *Parſnips*, *Skirrets*, &c. *Cauly-flowers*, *Cabbages*, *Onions*, &c. *Scurvy-graſs*, *Anniſeeds*, &c. · And fill your vacant Beds with *Sallading*, this Month and the · next.

Now you may *tranſplant* moſt ſorts of *Eſculent* or *Phyſical* Plants, *&c.*

Alſo *Artichoaks* and *Aſparagus-Roots*. · See *Diſcourſe of Earth*, · p. 34.

Sow alſo *Winter Herbs* and *Roots*, and plant *Strawberries* out of the *Woods*: · Set them a Foot or more aſunder.

· Bind up, and blanch *Sellery*, *Chardon*, &c. but tie not up in wet · Weather.

Towards the *end* earth up your *Winter-Plants* and *Sallet-Herbs*; and plant forth your *Cauly-flowers* and Nurſery *Cabbages* · under Shel- · ter, for Winter-Store, which were ſown in *Auguſt*: · Prepare *Com-* · *poſt*; ſee *January*; and for Trenching and Preparing the *Earth*, See · *Diſc. of Earth*, p. 13.

No longer now defer the *taking* of your *Bees*, ſtreightning the *Entrances* of ſuch *Hives* as you leave to a ſmall *Paſſage*, and continue ſtill your *Hoſtility* againſt *Waſps* and other robbing *Inſects*.

Cider-making continues.

Fruits in *Prime*, or yet *laſting.*

APPLES.

THE *Belle-bonne*, the *William*, Summer *Pear-main*, *Lording-Apple*, *Pear-Apple*, *Quince-Apple*, *Red-greening ribb'd*, *Bloody Pippin*, *Harvey*, *Violet-Apple*, &c.

PEARS.

Hamden's Bergamot (firſt ripe,) Summer *Bon-Chreſtien*, *Norwich*, *Black Worceſter* (baking,) *Green-field*, *Orange*, *Bergamot*,

the *Queen Hedge-Pear*, *Lewis-Pear* (to dry excellent) *Frith-Pear*, *Arundel-Pear* (alſo to bake,) *Brunſwick-Pear*, *Butter-Pear*, Winter *Poppering*, *Bing's-Pear*, *Biſhop's-Pear* (baking,) *Diego*, *Emperor's-Pear*, *Cluſter-Pear*, *Meſſire Jean*, *Rowling-Pear*, *Balſam-Pear*, *Bezy d'Hery*, *Pear Evelyn*, &c. *Sept. Par.*

PEACHES.

Violet Peach, *Admirable*, *Purple* Peach, *Malacoton*, and ſome others, if the Year prove backwards.

Almonds, &c.

Quinces.

Figs perfectly ripe.

Little *Blue Grape*, *Muſcadine Grape*, *Frontiniac*, *Parſly*, great *Blue Grape*, the *Verjuice Grape* excellent for Sauce, &c.

Barberries, &c.

Melons as yet.

SEPTEMBER

Hath xxx days,——long 12^h—37^m

Sun riſes 5^h—41^m——Sets 06^h—19^m

To be done

In the *Parterre* and *Flower-Garden.*

PLANT ſome of all the Sorts of *Anemonies* in good, rich, natural Earth, eſpecially the *Latifol.* after the firſt Rains, if you will have *Flowers* very forwards; but it is ſurer to attend till *October*, or the Month after, leſt the over-*moiſture* of the *Autumnal* Seaſons give you cauſe to repent.

Now is the moſt proper Seaſon to ſow *Auricula-Seeds*, ſetting the *Caſes* in the Sun till *April.* See *April.*

Begin now alſo to *plant* ſome *Tulips*, unleſs you will ſtay till the latter End of *October*, to prevent all hazard of *rotting* the *Bulbs.* Plant *Daffodils* and *Colchicum.*

All *Fibrous* Plants, ſuch as *Hepatica*, *Hellebore*, *Camomile*, &c. Alſo the *Capillaries*; *Matricaria*, *Violets*, *Primroſes*, &c. may now be *tranſplanted*; as likewiſe *Iris Chalcedon*, *Cyclamen*, &c.

Now you may alſo continue to ſow *Alaternus*, *Phillyrea*, (or you may forbear till the Spring) *Iris*, *Crown Imperial*, *Martagon*, *Tulips*, *Delphinium*, *Nigella*, *Candy-Tufts*, *Poppy*; and generally all the *Annuals* which are not impaired by the *Froſts.*

Sow *Primroſes* likewiſe: Remove Seedling *Digitalis*, and plant the Slips of *Lychnis* at the beginning.

Your *Tuberoſes* will not endure the Wet of this Seaſon, therefore ſet the *Pots*, (having laid them ſide-long to *drain*) into your *Conſerve*,

Sept. Par. · *ſerve*, and keep them very *dry*. It is beſt to take them out of the *Pots* about the beginning of this Month, and either to preſerve them in dry *Sand*, or wrap them up in *Papers*, and ſo put them in a Box near the Chimney.

Bind now up your *Autumnal Flowers* and *Plants* to *Stakes*, to prevent ſudden *Guſts*, which will elſe proſtrate all you have ſo induſtriouſly raiſed.

Now you may take off *Gilly-flower-layers* with Earth and all, and plant them in Pots or Borders ſhaded.

Crocus will now be rais'd of *Seeds*.

· You may yet tranſplant *Ever-greens*, and other rare *Shrubs* of the · laſt Month.

Prune *Pines* and *Firs* a little after this *Equinox*, if you omitted it in *March*, (· much the better Seaſon.) Vide *March*.

About *Michaelmas*, (ſooner or later, as the Seaſon directs) the Weather *fair*, and by no means *foggy*, retire your choice *Greens* and rareſt *Plants* (being *dry*) as *Oranges*, *Limons*, *Indian* and *Spaniſh Jaſmine*, *Oleanders*, *Barba Jovis*, *Amomum Plin.* *Cytiſus Lunatus*, *Chamelæa tricoccos*, *Ciſtus Ledon Cluſii*, *Dates*, *Aloes*, *Sedums*, &c. into your *Conſervatory*; ordering them with freſh Mould, as you were taught in *May* and *July*, *viz.* taking away ſome of the upmoſt exhauſted Earth, and ſtirring up the reſt, fill the Caſes with rich and well-conſumed *Soil*, to waſh in and nouriſh the Roots during Winter; but as yet leaving the *Doors* and *Windows* open, and giving them free *Air*, ſo the *Winds* be not ſharp and high, nor Weather *foggy*; do thus till the Cold being more intenſe, advertiſe you to *incloſe* them all together: *Myrtles* will endure abroad near a Month longer.

The Cold now advancing, ſet ſuch Plants as will not endure the *Houſe*, into the *Earth*; the Pots two or three Inches lower than the Surface of ſome *Bed* under a *Southern* Expoſure: Then *cover* them with Glaſſes, having *cloathed* them firſt with ſweet and dry *Moſs*; but upon all *warm* and benign *Emiſſions* of the Sun and ſweet Showers, give them *Air*, by taking off all that covers them. Thus you ſhall preſerve your coſtly and precious *Marum Syriacum*, *Ciſtus's*, *Geranium nocte olens*, *Flos Cardinalis*, *Marcocs*, ſeedling *Arbutus's* (a very hardy Plant when greater) choiceſt *Ranunculus's* and *Anemonies*, *Acacia*, *Egypt*, &c. Thus governing them till *April*. Secrets not till now divulged.

Note, that Cats will eat and deſtroy your *Marum Syriacum*, if they can come at it; therefore guard it with a *Furſe* or *Holly-branch*.

Flowers in *Prime*, or yet *laſting*.

A *Maranthus tricolor*, and others; *Anagallis* of *Portugal*, *Antirrhinum*, *African flo.* *Amomum Plinii*, *Aſter Atticus*, *Belvedere*, *Bellis*, *Campanula's*, *Colchicum*, *Autumnal Cyclamen*, *Clematis*, *Chryſanthemum anguſtifol.* *Eupatorium* of *Canada*, *Sun-flower*, *Stock-gil. flo.* *Geranium Creticum* and *nocte olens*, *Gentianella annual*, *Hieracion minus Alpeſtre*, *Tuberous Indian Jacinth*, *Linaria Cretica*, *Lychnis*, *Conſtant.* ſingle and double, *Limonium*, *Indian Lilly*, *Narciſſ.* *Pomum Aureum*, *Amoris*, & *Spinoſum Ind.* Marvel of *Peru*, *Millefolium* yellow, *Moly Monſpelienſ.* *Naſturtiüm Indicum*, *Perſian Autumnal Narciſſus*, *Virginian Phalangium*, *Indian Phaſeolus*,

ſeolus, *Scarlet Beans*, *Convolvolus diverſ. gen. Candy-tufts*, *Veroni-ca*, purple *Volubilis*, *Aſphodil*, *Crocus*, or Engliſh *Saffron*, *Guernſey Lilly*, or *Narciſſus* of *Japan*, *Poppy* of all Colours, ſingle and double, *Malva arboreſcens*, *Indian Pinks*, *Æthiopick Apples*, *Capſicum Ind.* *Gilly-flowers*, *Paſſion Flower*, *Datura* double and ſingle, *Portugal Ranunculus's*, *Spaniſh Jaſmine*, yellow *Virginian Jaſmine*, *Rhodo-dendron* white and red, *Oranges*, *Myrtles*, *Balauſtia*, *Musk Roſe*, and *Monthly Roſe*, &c. *Octob. Olit.*

M

OCTOBER

Hath xxxi days,——long 10^h—47^m
Sun riſes 6^h—38^m——Sets 05^h—22^m

To be done

In the *Orchard* and *Olitory-Garden.*

TRench Grounds for *Orcharding*, and the *Kitchen-Garden*, to lie for a Winter mellowing. See *Diſc. of Earth*, p. 12. · Finiſh · what you begun laſt Month.

Plant dry *Trees*, (i.e.) *Fruit* of all ſorts, *Standard*, *Mural*, or *Shrubs* which loſe their Leaf; and that ſo ſoon as it *falls:* But be ſure you chuſe no *Trees* for the *Wall* of above two Years *graffing* at the moſt, *ſound* and *ſmooth*. · See *Diſc. of Earth*, p. 35. and *Pomona*, cap. 6.

Now is the time for *Ablaqueation*, and laying bare the Roots of old *unthriving*, or over-*haſtily blooming* Trees; · ſtirring up new planted · Grounds, as directed in *March*.

Moon now decreaſing, gather *Winter-Fruit* that remains, Weather dry; take heed of *bruiſing*; lay them up *clean*, leſt they *taint:* Cut and prune *Roſes* yearly, reducing them to a Standard not over tall.

· To prevent *bruiſing* by *Wind-falls* and Guſts now uſually happen-· ning, lay ſome ſweet Straw under your *Fruit-Trees*.

Plant, and plaſh *Quick-ſets*.

Remove *Graffs* after the ſecond Year, unleſs *Dwarfs*, which you may let ſtand till the third.

Save and ſow all *ſtoney* and hard *Kernels* and *Seeds*; ſuch as Black *Cherry*, *Morellos*, Black *Heart*, all good; *Pear-Plum*, *Peaches*, *Almond-ſtones*, &c. Alſo *Nuts*, *Haws*, *Aſhen*, *Sycamore*, and *Ma-ple* Keys; *Acorns*, *Beech-maſt*, *Apple*, *Pear*, and *Crab* Kernels for Stocks; or you may defer it till the next Month towards the latter end, keeping them dry, and free from Muſtineſs; remembring to cover the Beds with Littier. See Directions in · our *Sylva* for *Foreſt-Trees*, and · *Pomona*, cap. 1.

You may yet ſow *Genoa Lettuce*, which will laſt all the * Winter, *Radiſh*, &c. · Make Winter *Cider* and *Perry:* Towards the latter · End, plant *Abricots*, *Cherries*, *Plums*, *Vines*, Winter *Pears*, &c.

* *Eſpecially under* Glaſs Bells *or* Frames, *with a little Straw over them, when the hard* Froſts *come; but then touch them not till they thaw, leſt you break the* Glaſſes.

Fruits in *Prime*, or yet *laſting.*

APPLES.

Belle-et-Bonne, William, Coſtard, Lording, Parſley-Apples, Pearmain, Pear-Apple, Honey-meal, Apis, &c.

PEARS.

The *Caw-Pear* (baking) *Green-butter-Pear, Thorn-Pear, Clove-Pear, Rouſſel-Pear*, Winter *Bon-Chreſtien, Town-Pear, Lombart-Pear, Ruſſet-Pear, Saffron-Pear*, and ſome of the former Month, *Violet-Pear, Petworth-Pear*, otherwiſe called the *Winter-Windſor, Lanſac, Bearn-Pear, Admirable, Violet* Peach, *Rambouillet, Paves*, &c.

Bullis, and divers of the *September Plums*, the *Chaſſelas*, and other *Grapes, Pines, Arbutus*, &c.

M

OCTOBER

Hath xxxi days,——long 10^h—47^m

Sun riſes 6^h—38^m——Sets 05^h—22^m

To be done

In the *Parterre* and *Flower Garden.*

NOW your *Narciſſus Tuberoſe* not enduring the *wet*, muſt be ſet into the Houſe, and preſerved very *dry* till *April*. · See · *September*.

Continue *ſowing* what you did in *September*, if you pleaſe: Likewiſe *Cypreſs* may be ſown, but take heed of the *Froſt*, · therefore for-· bear much Clipping. *Vide* March. Alſo,

You may plant ſome *Anemonies*, eſpecially the *Tenuifolia's* and *Ranunculus's*, in freſh, *ſandiſh Earth*, taken from under the *Turf*; but lay richer Mould at the *bottom* of the Bed, which the *Fibres* may reach, but not to touch the main *Roots*, which are to be cover'd with the *natural Earth* two Inches deep: And ſo ſoon as they appear, ſecure them with *Mats* or dry *Straw* from the Winds and Froſts, giving them Air in all benign Intervals, if poſſible, *once* a day.

Plant alſo *Ranunculus's* of *Tripoly*, *Vernal Crocus's*, &c. Remove ſeedling *Holly-hocks*, or others.

Plant now your choice *Tulips*, &c. which you fear'd to *inter* at the beginning of *September*; they will be more ſecure, and forward enough: But plant them in *natural Earth* ſomewhat *impoveriſh'd* with very fine Sand, elſe they will ſoon loſe their *Variegations*; ſome more *rich Earth* may lie at the *bottom*, within reach of the *Fibres* (as above:) Now have a care your *Carnations* catch not too much

much *wet*; therefore retire them to *covert*, where they may be kept from the *Rain*, not the *Air*, or lay them on the ſides, trimming them with *freſh Mould.* *Octob. Par.*

All ſorts of *Bulbous Roots* may now alſo be ſafely *buried*; likewiſe *Iris's*, &c.

You may yet ſow *Alaternus* and *Phillyrea* Seeds: It will now be good to *Beat*, *Roll*, and *Mow Carpet Walks* and *Camomile*; for now the Ground is *ſupple*, and it will *even* all *Inequalities*. Finiſh your laſt *Weeding*, &c.

Sweep and cleanſe your *Walks*, and all other *Places*, from *Autumnal Leaves* fallen, leſt the *Worms* draw them into their *Holes*, and foul your *Gardens*, *&c.*

Flowers in *Prime*, or yet *laſting.*

Amaranthus tricolor, *&c. Aſter Atticus*, *Amomums*, *Antirrhinum*, *Colchicum*, *Saffron*, *Cyclamen*, *Clematis*, *Heliotrops*, *Stock-gilly-flower*, *Geranium triſte*, *Ind. Tuberoſe Jacinth*, *Limonium*, *Lychnis* white and double, *Pomum Amoris* and *Æthiop. Marvel* of *Peru*, *Millefol. luteum*, *Autumnal Narciſſ. Panſies*, *Aleppo Narciſſ. Sphærical Narciſſ. Naſturt. Perſicum*, *Gilly-flower*, *Virgin Phalangium*, *Philoſella*, *Violets*, *Veronica*, *Arbutus*, *Span. Jaſmine*, and yellow *Ind. Jaſmine*, Monthly *Roſe*, *Oranges*, *Myrtles*, *Balauſtor*, *Pomegranade.*

NOVEMBER

Hath xxx days,——long 08^h—52^m
Sun riſes 7^h—34^m—Sets 04^h—26^m

To be done

In the *Orchard* and *Olitory Garden.*

CArry *Compoſt* out of your *Melon-Ground*, or turn, and *mingle* it with the *Earth*, and lay it in *Ridges* ready for the *Spring*: Alſo *trench*, and fit Ground for *Artichoaks*, &c. See *Diſc. of Earth*, p. 34.

The *Hot-bed* muſt now ſupply for *Sallets*, young *Lettuce*, *Creſſes*, *Chervil*, &c. and truſt not to the accidental mildneſs of the Weather, ſo as to neglect timely Cover to your tender *Olitories*: Shelter *Fig-Trees*. Plant alſo *Gooſeberries*, *Raſpis*, *Corinths*, and other *Shrub* Fruit.

Nov. Olit.

· *Note*, That the *Leaves* fallen in the *Woods*, may ſupply for *Long-*
· *dung*, laid about *Artichoaks* and other things, even to the end of
· *March.*

Continue your *Setting* and *Tranſplanting* of *Trees*; loſe no time, hard *Froſts* come on apace: Yet you may lay bare old Roots: · (*Diſc.*
· *of Earth*, p. 35.

· Remember in all *Tranſplantings* to obſerve the former *Aſpect* and
· Quarter of the *Compaſs*; as of much *Importance*, whatever ſome fan-
· cy: Nor ſet any *deeper* than it ſtood, eſtabliſhing it againſt Winds:
· You cannot plant too early in *Autumn*, Wind *South* or *Weſt*.

· To Sow moderately *dry*, Plant *moiſt*, a general *Rule*: but cover not
· too thick with Earth what you ſow, for *Nature* covers nothing:
· You cannot ſow too ſhallow, ſo you preſerve the Seed from *Birds*.

Plant young Trees, *Standards*, or *Mural*. · See *Diſcourſe of*
· *Earth*, p. 35.

Furniſh your *Nurſery* with *Stocks* to *graff* on the following Year.

· Prepare now *Stocks* for all ſorts of *Fruit*: The proper ones are, the
· *Crab-ſtock* for *Standards:* For *Dwarfs*, Stocks of the *Paradiſe* or
· ſweet Apple-kernel, which are likewiſe to be had from *Layers* and
· *Suckers*. *Pears*, on the *Pear-kernel Stock* or *Sucker*: *Dwarfs*, on
· the Suckers of the *Portugal Quince*.

· *Cherry* Standards, on the *Black Cherry-ſtone* Stock; *Dwarfs* for
· *Walls* or *Palliſades*, &c. on the *Morello Stock*, *Black Heart*, or
· ſmall, bitter, early *Cherry-Stock*.

· *Peaches*, inoculate on the *Peach* or *Plum-Stock*: If you *bud* up-
· on the *Almond*, let it be on a *Stock* which has never been removed,
· and ſo continue. But the beſt way to prepare theſe *Stocks*, ſee in
· *M. de la Quintine's Compleat Gardiner*, *Vol.* II. *Part.* 6. *Page*
· 172. too long here to be inſerted.

· *Nectarines*, on *Peach*, or *Pear-Plum* Stock.

· *Abricots*, on the *White Pear-Plum* Stock.

· *Plums*, on *Plum-Stocks*: The *white* and *black* Pear-Plum Stock
· are beſt, and from the Stones of *Damſons*, and may all be gotten
· alſo from their *Suckers*.

· Graff the *Medler* on the *White-Thorn* or *Quince* Stock, near the
· Ground, it will bear the ſecond Year.

· *Figs* and *Mulberries* will be propagated by their *Suckers*, *Cut-*
· *tings*, and *Layers*; of all which ſee our *Treatiſe* of *Earth*, for their
· Culture in the *Nurſery*.

Sow and *ſet* early *Beans* and *Peaſe* till *Shrovetide*; and now lay up in your *Cellars* for *ſpending*, and for *Seed*, to be *tranſplanted* at *Spring*, *Carrots*, *Parſnips*, *Turnips*, *Cabbages*, *Cauly-flowers*, &c.

Cut off the *Tops* and *Stalks* of *Aſparagus*, and cover it with *long Dung*, or make *Beds* to plant in *Spring*, &c.

Now, in a *dry* day, gather your laſt *Orchard-Fruits*.

Take up your *Potatoes* for *Winter* ſpending; there will enough remain for *Stock*, tho' never ſo exactly gathered.

· *Ablaqueation* now profitable, and to viſit the *Roots* of old Trees,
· purge the ſickly, and apply freſh Mould. Cover alſo your moſt deli-
· cate *Stone-Fruit* and *Murals*, skreening them with *Straw-hurdles*,
· as long as the *Eaſt* and *Northern Winds* continue, even to the end of
· *March*, to be ſure of *Fruit*. Stand not therefore ſo much upon the
· *Beauty*, as for its *Preſervation* and *Production*.

Fruits

Fruits in *Prime*, or yet *laſting.*

APPLES.

THE *Belle-bonne*, the *William*, Summer *Pearmain*, *Lording-Apple*, *Pear-Apple*, *Cardinal*, Winter *Cheſtnut*, *Calvil*, *Short-ſtart*, &c. and ſome other of the former *two* laſt *Months*, &c.

PEARS.

Meſſire Jean, *Lord-Pear*, long *Bergamot*, *Warden* (to bake) *Burnt-cat*, *Sugar-Pear*, *Lady-Pear*, *Amadot*, *Ambret*, *Ice-Pear*, *Dove-Pear*, *Virgoule*, *Deadman's-Pear*, Winter *Bergamot*, *Bell-Pear*, &c.

Arbutus, *Bullis*, *Medlars*, *Services.*

NOVEMBER

Hath xxx days,——long $08^h—52^m$
Sun riſes $7^h—34^m$——Sets $04^h—26^m$

To be done

In the *Parterre* and *Flower-Garden.*

SOW *Auricula* Seeds thus: Prepare very *rich Earth*, more than half Dung; upon that *ſift* ſome very light *ſandy Mould*, and the *Earth* gotten out of old hollow *Willow-Trees*; and then *ſow*: Set your *Caſes* or *Pans* in the *Sun* till *March* or *April.*

Cover your peeping *Ranunculus's*, &c. And ſee the Advice in *March* for *Ever-green Seedlings*; eſpecially if long *Snows* and bitter *Winds* be feared; prepare therefore ſtore of *Coverings.*

Now is your beſt *Seaſon* (the Weather *open*) to plant your faireſt *Tulips* in places of *Shelter*, and under *Eſpaliers*; but let not your *Earth* be too *rich*: Vide *October.* *Tranſplant* ordinary *Jaſmine*, &c.

About the *middle* of this *Month* (or ſooner, if *Weather* require) quite *encloſe* your tender Plants, and *perennial Green Shrubs*, &c. in your *Conſervatory*, ſecluding all entrance of *Cold*, and eſpecially ſharp *Winds*; and if the *Plants* become exceeding *dry*, and that it do not actually *freeze*, refreſh them *ſparingly* (See *April*) with *qualified Water* (i.e.) mingled with a little *Sheeps* or *Cow-dung*: If the *Seaſon* prove exceeding piercing (which you may know by the *freezing* of a *Diſh* of *Water*, or moiſtned *Cloth*, ſet for that purpoſe in your *Green-houſe*) kindle ſome *Charcoals*, and when they have done ſmoaking, put them in a *Hole* ſunk a little into the *Floor* about the middle of it;

unleſs

Nov. Par.

· unleſs your *Green-houſe* have a *ſubterranean Stove*, which moderate-
· ly, and with Judgment *temper'd*, is much to be *preferr'd*: In the
· mean time I cou'd wiſh that ſome *curious Perſon* would make trial
· of what we have deſcrib'd at the end of this *Kalendar*, pag. 228. At
· all other times, when it does not actually *freeze*, or the Weather not
· *Rainy* or *Miſty*, and that the *Air* is warm'd by the *Beams* of a fine
Day, (and the *Sun* darts full upon the *Houſe*, without the leaſt *Wind* ſtirring) ſhew them the Light · thro' the *Glaſs Windows*, (for *Light*
· is half their Nouriſhment *Philoſophically* conſider'd;) but incloſe
· them again before the *Sun* be gone off, if it be inclin'd to *Froſt*, other-
· wiſe keep open-Houſe all Night long.

· *Note*, That when thro' continuance of hard and ſharp Weather,
· *houſed* Trees grow *tainted* with Muſtineſs, make *Fire* in your *Stove*,
· and open all the Windows from ten in the Morning till three in the
· Afternoon: Then cloſing the Double-ſhuts, (or *Chaſſes* rather) con-
· tinue a gentle Heat, renewing the *Fire* at *Night* only.

Note, That you muſt never give your *Aloes* or *Sedums* one drop of *Water* during the whole *Winter*: And indeed you can hardly be too ſparing of Water to your *hous'd Plants* (*Orange-Trees* eſpecially;) the not obſerving of *this*, deſtroys more *Plants* than all the rudeneſſes of the *Seaſon*. To know when they want refreſhing, conſider the *Leaves*; if they *ſhrivel* and *fold up*, give them *Drink*; if pale and *whitiſh*, they have already too much; and the defect is at the *Roots*,
· which are in peril of rotting and require larger *Caſes*. Take alſo this for a Rule, · That you are not much to regard the Surface Mould alone,
· which will oftentimes be Duſt, when the Earth about the *Roots* is
· ſufficiently moiſt; ſearch it therefore, by thruſting down your Hand;
· and as you find it, govern the watering; for in this *Secret* of ſeaſona-
· bly refreſhing, conſiſts the *Health* and even *Life* of all your *hous'd*
· Curioſities.

· *Note*, That Water made over-rich with *Dung*, and too frequently
· us'd, is apt to infect the *Orange-Leaves*, and thoſe of other rare Plants, with a *black Smut*, which muſt be *wip'd* off.

If your *Aloes* grow manifeſtly too dry, expoſe them a while to the *Air*, when clear, 'twill immediately recover them; but give them not a drop of *Water*, how dry ſoever their *Pots* be.

Houſe your choiceſt *Carnations*, or rather ſet them under a *Pent-houſe* againſt a South-Wall, ſo as a *Covering* being thrown over them to preſerve them in extremity of *Weather*, they may yet enjoy the freer *Air* at all other times.

Prepare alſo *Matraſſes*, *Boxes*, *Caſes*, *Pots*, &c. for *Shelter* to your tender *Plants* and *Seedlings* newly ſown, if the weather prove very bitter.

Plant *Roſes*, *Althea frutex*, *Lalac*, *Syringas*, *Cytiſus*, *Pæonies*, &c.

Plant alſo *Fibrous Roots* ſpecified in the precedent *Month*.

Sow alſo *ſtony Seeds* mention'd in *October*.

Plant all *Foreſt-Trees* for *Walks*, *Avenues*, and *Groves*.

· *Note*, That you may *tranſplant* not only any *Fruit-Trees*, but
· *remove* almoſt any of the *Foreſters*, even in the midſt of *Summer*, if
· taking the *Trees* up with ſome Mould about the *Roots*, you imme-
· diately plunge them into *Earth* made into a *Pap* like *Mortar*, keep-
· ing it freſh and under Shade, and not ſuffering the Ground quite to
· dry up and harden till *Rain* comes down.

Sweep and *cleanſe* your *Garden-walks*, and all other Places, from *Autumnal* Leaves, the laſt time.

Flowers

Flowers in *Prime*, or yet *laſting.*

Anemonies, *Meadow Saffron*, *Antirrhinum*, *Stock-Gillyflower*, *Bellis*, *Clematis*, *Panſies*, ſome *Carnations*, double *Violets*, *Veronica*, *Spaniſh* and *Indian Jaſmine*, *Myrtles*, *Musk Roſe*, &c.

DECEMBER

Hath xxxi Days——long $07^h—40^m$
Sun riſes $8^h—10^m$——Sets $03^h—50^m$

To be done

In the *Orchard* and *Olitory Garden.*

PRUNE and nail *Wall-Fruit*, (which yet you may better defer a *Month* or two longer) and *Standard-Trees* that are hardy.

You may now plant *Vines*, &c. · See *Diſc. of Earth*, p. 13, 23.

Alſo *Stocks* for *graffing*, &c.

Sow, as yet, *Pomace* of *Cider-Preſſings* to raiſe *Nurſeries*; and ſet all ſorts of *Kernels*, *Stones*, &c.

Sow for early *Beans* and *Peaſe*, but take heed of the *Froſts*; therefore ſureſt to defer it till after *Chriſtmas*, unleſs the *Winter* promiſe very *moderate*.

· Expect no freſh *Sallet* but from your *Hot-bed*: See how to make · it, and to force *Aſparagus*, in M. *de la Quintine*, *Vol.* II. *Part* VI. Pages 169, 181.

All this Month you may continue to *trench* Ground, and *dung* it, to be ready for *Borders*, or the planting of *Fruit-Trees*, &c. · See · the Note in *January*.

Either late in this Month, or in *January*, prune and cut off all your *Vine-Shoots* to the very *Root*, ſave one or two of the ſtouteſt, to be left with three or four *Eyes* of *young Wood*. This for the *Vineyard*.

Now *feed* your *weak Stocks*.

Turn and *refreſh* your *Autumnal Fruit*, leſt it *taint*, and open the *Windows* where it lies, in a clear and *ſerene* Day.

Fruits in *Prime*, or yet *laſting.*

APPLES.

ROuſſeting, *Pippins*, *Leather-coat*, Winter *Reed*, *Cheſtnut Apple*, *Apis*, *Fennel Apple*, *Greatbelly*, the *Go-no-further*, or *Cats-head*, with ſome of the precedent *Month*.

PEARS.

The *Squib-Pear*, *Spindle-Pear*, *Doyonere*, *Virgin*, *Gaſcogne-Bergomot*, *Scarlet-Pear*, *Stopple-Pear*, *Vergoules*, *Portail*, white, red, and *French Wardens*, (to bake or roaſt) *&c.* the *Dead-man's Pear*, excellent, *&c.*

VS

DECEMBER

Hath xxxi Days,——long $07^h—40^m$
Sun riſes $8^h—10^m$——Sets $03^h—50^m$

To be done

In the *Parterre* and *Flower-Garden.*

AS in *January*, continue your *Hoſtility* againſt *Vermin.*

Preſerve from too much *Rain* and *Froſt*, your choiceſt *Anemonies*, *Ranunculus's*, *Carnations*, &c.

Be careful now to keep the *Doors* and *Windows* of your *Conſervatories* well *matted* and guarded from the piercing *Air*: For your *Oranges*, &c. are now put to the *Teſt.* Temper the *cold* with a few *Charcoal* governed as directed in *November*; but never accuſtom your *Plants* to it, unleſs the *utmoſt* Severity of the *Seaſon* require; therefore if the *Place* be exquiſitely *cloſe*, they will even *then* hardly require it, *&c.*

Set *Bayberries*, &c. dropping ripe.

Look to your *Fountain-Pipes*, and cover them with freſh and *warm Littier* out of the *Stable*, a good *Thickneſs*, leſt the *Froſts* crack them; remember it in *Time*, and the *Advice* will ſave you both Trouble and Charge.

Flowers in *Prime*, or yet *laſting.*

ANemonies ſome, *Perſian* and common Winter *Cyclamen*, *Antirrhinum*, *Black Hellebore*, *Laurus-tinus*, ſingle *Primroſes*, *Stock-gillyflo. Iris Cluſii*, *Snow-flowers* or *Drops*, *Yucca*, &c.

FOR by ſuch a *Kalender* it is that a *Royal Garden* or *Plantation* may be contrived according to my Lord *Verulam*'s Deſign, *pro ſingulis Anni Menſibus*, for every *Month* of the *Year.*

But, becauſe it is in this *cold Seaſon* that our *Gardiner* is chiefly diligent about preſerving his more *tender*, *rare*, *exotic*, and *coſtly Shrubs*, *Plants*, and *Flowers*; we have thought fit to add the *Catalogue*, as it is (much after this Sort) *collected* to our Hands, by the Learned and Induſtrious Dr. *Sharrock* (though with ſome *Reformation* and *Improvement*) of all *ſuch*, as according to their different *Natures*

tures do require *more* or *leſs* Indulgence: And theſe we have diſtributed likewiſe into the *three* following *Claſſes.*

CLASS I.

Being leaſt *patient* of *Cold*, and therefore to be *firſt* ſet into the *Conſervatory*, or other ways defended.

Acacia Ægyptiaca, Aloe American. Amaranthus tricolor, Aſpalathus Cret. Balſamum, Helichryſon, Chamelæa tricoccos, Naſturtium Indicum, Indian Narciſſus, Ornithogalon Arab. Ind. Phaſeol. Capſicum Ind. Pomum Æthiop. Aureum, Spinoſum; Summer *Sweet Majoran*, the two *Marums Syriac*, &c. *Dactyls, Piſtacio's*, the great *Indian Fig, Lilac flo. Alb. Lavendula Multif. Cluſ. Ciſtus Raguſæus flo. alb. Colutea Odorata, Cretica, Narciſſus Tuberoſus, Styrax Arbor*, &c.

CLASS II.

Enduring the ſecond Degree of *Cold*, and accordingly to be *ſecured* in the *Conſervatory.*

Amomum Plinii, Carob. Chamelæa Alpeſtris, Ciſtus Ledon. Cluſ. Citron, Vernal Cyclamen, Summer *Purple Cyclamen, Digitalis, Hiſpan. Geranium triſte, Hedyſarum Clypeatum, Aſpalathus Creticus, Spaniſh Jaſmine, Virgin. Jaſmine, Suza Iris, Jacobæa Marina, Alexandrian Laurel, Oleanders, Limonium elegans, Myrtles, Oranges, Lentiſcus, Levantine tufted Narciſſus, Gill. flo.* and choiceſt *Carnations, Phalangium Creticum, Aſiatic* double and ſingle *Ranunculus's, Narciſſus* of *Japan, Cytiſus rub. Canna Indica, Thymus Capitatus, Verbena nodi flo. Cretica*, &c.

CLASS III.

Which not *periſhing* but in exceſſive *Colds*, are therefore to be *laſt* ſet in; or rather *protected* under *Mattraſſes*, and ſlighter *Coverings*, abroad in the *Earth, Caſes, Boxes*, or *Pots*, &c.

Abrotonum maſ. fæm. Winter *Aconite, Adianthum Verum, Bellis Hiſpan. Calceolus Mariæ, Capparis, Cineraria, Cneorum Matthioli, Cytiſus Maranthæ, rub. Lunatus, Eryngium planum totum cæruleum, Fritillaria Mont. Geniſta Hiſpan. flo. alb. Pomegranads, Orient. Jacinth, Bulbous Iris, Laurels, Cherry Laurel, Lychnis* double white, *Matricaria* double flo. *Olives, Pancration, Papaver ſpinoſiſſ. Marcot, Roſemary, Siſynrichium, Turpentine-Tree, Teuchriummas Tithymal. Myrtifol. Veronica* double flo. *Olives*, ſingle *Violets, Lavender, Serpentaria trifol.* &c. *Ornithogalon Arab.* white and doub. *Narciſſus* of *Conſtantinople*, late *Pine-Apples, Moly, Perſian Jaſmine, Opuntia*, or the ſmaller *Indian Fig, Jucca, Seſeli Æthiop. Agnus Caſtus, Malva Arboreſcens, Ciſtus maſ. Althæa Frutex, Sarſaparilla, Cupreſſus, Crithmum marinum*, &c.

For to *theſe* might innumerable others be *added*; but we conceive them *ſufficient*, and more than (we fear) ſome *envious* and *mercenary Gardiners* will thank us for; but they deſerve not the *Name* of that

that *Communicative* and Noble *Profeſſion:* However, *this*, as a *Specimen* of our *Affection* to the *Publick*; and to gratify divers *Honourable* and induſtrious *Perſons*, whoſe *Inclination* to this *innocent Toil*, has made them ſpare no *Treaſure* or *Pains* for the *Furniture* of their *Parterres* with *Variety*; the *Miſcarriage* whereof being ſometimes *univerſal* to the *Curious*, has made us the more *freely* to *impart* both what we have *experimentally* learned from our own *Obſervations*, and from *others* of undoubted *Candor* and *Ingenuity*.

A New Conſervatory, or Green-House.

'TIS now after many ſevere *Winters* Obſervation, both whilſt they made uſe of the ordinary *Iron Stoves*, and other Inventions, to moderate the ſharp *Air* in the *Green-houſe* (as they call it) and even ſince the *Subterranean Caliducts* have been introduc'd, I often took Notice, that though the moſt tender and nicer *Plants*, ſuch as commonly are brought in out of the *Air*, for their Preſervation (during the rigid Froſts and piercing Winds) did outlive and eſcape thoſe rigorous Seaſons for the moſt part, and ſome of them make conſiderable Advance, producing and maintaining both Fruit and Flowers: Yet, that even the hardieſt among them, very rarely paſs'd their Confinements, without Sickneſs, a certain *Languor* Taint, diſcoverable by their Complexions: Many of their Leaves parch'd about their Edges, or falling, dry, and depriv'd of their natutal Verdure, with other *Symptoms*, which can proceed from no other (ſo likely) Cauſe, as their being kept from *Breathing* (as I preſume to call it) the pure and genuine *Air*, impregnated with its *nitrous Pabulum*, which is not only the Nouriſhment and Life of *Animals*, but of all *Plants* and *Vegetables* whatſoever.

This, whilſt I could not but impute to the Conſumption of that inſpiriting *balſamick* Nouriture, by reaſon of dry Heat emitted from the common *Stoves*, Pans of *Charcoal*, and other included Heaters, which continually prey'd upon, waſted, and vitiated the *ſtagnant* and pent-in Air, without any due and wholſome Succeſſion of a more vital and freſh Supply: It came into my Thoughts, that there might haply be found out ſome Contrivance, whereby to remedy this Inconvenience, with conſiderable Improvement, and no great Charge or Difficulty; if, inſtead of that impriſon'd and *Effæte* Air, within the *Green-houſe*, there might a conſtant Stream of freſh and untainted be let in, and iſſue out as freely; and that ſo qualified in its *Intermediate Compoſition* (which is another Conſideration I ſuſpend the mentioning at preſent) as ſhould be very agreeable to the Nature and Conſtitution of the ſeveral Plants that were to paſs their *Hybernation* in the *Green-houſe*.

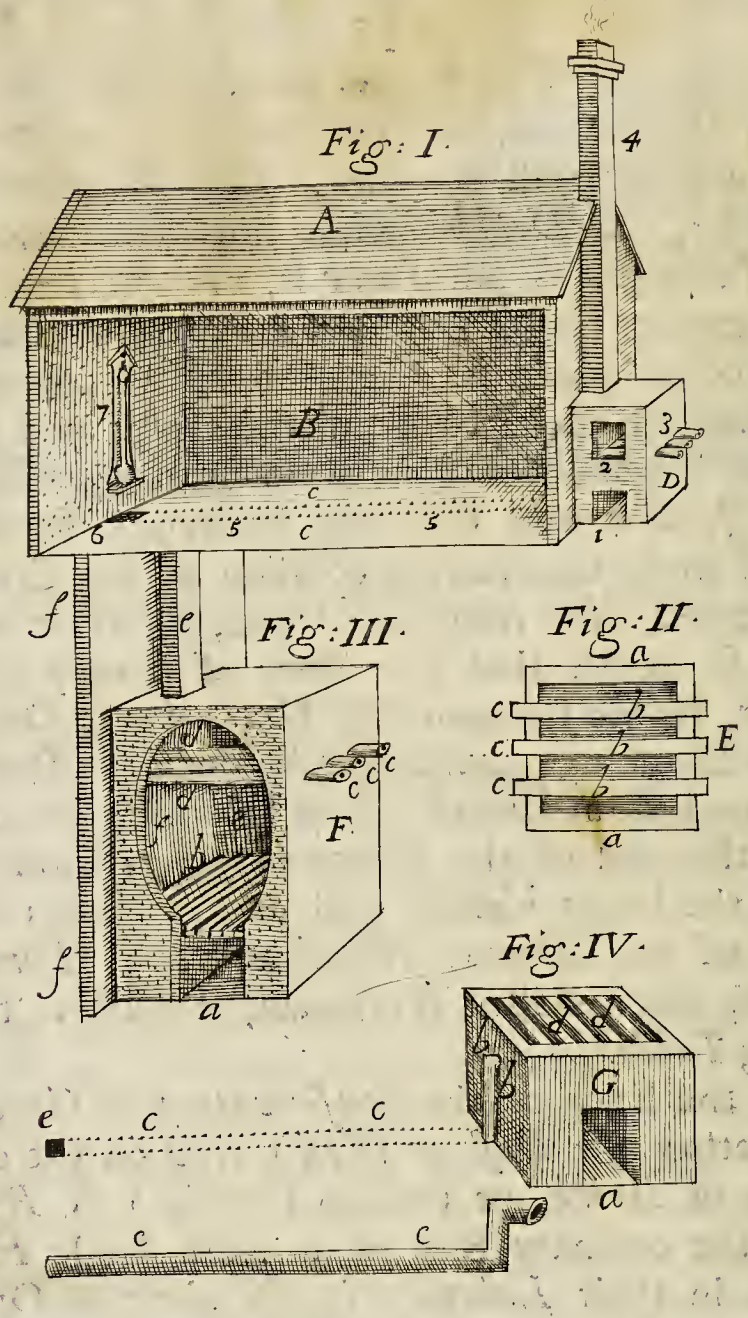
Sir *Chr. Wren.* Mr. *Hook.*

Communicating *theſe Thoughts* to ſome of the *Royal Society* (not only approving, but concurring with the Propoſal) it produced the following *Scheme*, which I recommend to the Curious at Adventure; the *Speculation* being, I think, ſo very rational, (and by ſome Experiments

· periments on that *Element* demonſtrated) the *Practice* ſo little
· chargeable, and the Benefit of ſo great Concernment to our *Gar-*
· *diner.*

· In deſcribing this, I ſhall not need to ſay any thing concerning
· the neceſſary Dimenſions, or Ornaments of the Structure: Every ex-
· perienc'd *Gardiner* will conſider, that of whatſoever *Length* his
· *Green-houſe* be, the *Depth* ſhould not much exceed twelve or thir-
· teen Feet, (though as our *Stove* is, and may be contriv'd, it may
· be of much greater Capacity) nor the *Height* above ten or eleven at
· moſt: That being plac'd at the moſt advantageous Expoſure to the
· *Sun*; that *Side* be made to open with large and ample Windows or
· *Chaſſes*, (for *Light* it ſelf, next to *Air*, is of wonderful Impor-
· tance) the *Joints*, and *Glazing* accurately fitted, and cemented:
· And (to the end, that having occaſion at any time to go into the
· Houſe, no crude *Air* ruſh in) I add, That it were convenient a
· *Porch* were ſo made, that the Door of it may ſhut very cloſe after
· the *Gardiner*, before he open the *Green-houſe* Door, which he is to
· ſhut again at his going out, before he open the Door of the *Porch* at
· which he entred from abroad: And this may be contriv'd to a ſmall
· *Wicket*, at the end of the *Green-houſe*, without being oblig'd to
· open any of the larger *Valves* and double Doors without Neceſſity.
· This Work of the *Doors*, *Windows*, and *Porch* requiring good
· ſeaſon'd Stuff, and a skilful Workman, I paſs to the Explanation of
· the following *Table.*

· At one of the Ends of the *Conſervatory* or *Green-houſe* ('tis not
· material whether the *Eaſt* or *Weſt*) erect on the out-ſide Wall your
· *Stove*, be it of *Brick*, or (which I prefer) of *Rygate-Stone*, built
· Square, of the ordinary Size of a plain ſingle *Furnace*, (ſuch as
· *Chymiſts* uſe in their *Laboratories* for common Operations) conſiſt-
· ing of a *Fire-hearth*, and an *Aſh-hole* only; which need not take up
· above two Feet from Out to Out: Let it be yet ſo built, that the
· *Fire-grate* ſtand about three Feet higher than the Floor or *Area* of
· of the Houſe. The *Flue*, *Shaft*, *Fire*, and *Aſh-hole* to be without,
· though joining cloſe to the End-wall, as in *Figure* I. which repre-
· ſents the *Conſervatories* Inſide, with the *South-ſide* quite open, and
· *Stove* abroad in the Air.



Note, That in this *Plate* or *Perſpective* of the *Green-houſe*, Fig. I. D. the *Stove-Pipes* at 3 are plac'd a little *too low* and near the *Grate*; and ſomewhat *too high* from it in Fig. III. *c c c*; eaſily reform'd in the Structure of the *Furnace*.

FIGURE I.

The Whole Green-houſe *and* Furnace *in Perſpective.*

A. The *Roof*, whether round or flat within.
B. The North blind Wall.
C. The *Area*, or Floor within.
D. The *Stove* or *Furnace*.
1. The *Aſh-hole*,
2. The *Fire-hearth*, } The Mouths of both to be fitted with Doors or *Plugs*, for the regulating of the Heat.
3. The Extremities of certain *Pipes* paſſing thorough the Brickwork and *Furnace*, and projecting both without and within the Houſe.
4. The *Funnel* or Shaft applied to the Wall without, which carries up both the Smoke of the Fuel, and exhauſted *Air* of the *Green-houſe*, thorough the *Air-pipe*, &c.

5. The

5. The *Air Ground-pipe*, laid the whole length of the *Green-houſe*, in the middle of the Floor, a little under the Ground or Pavement thereof; and reaching from end to end.
6. The *Hole*, or Opening at the end of the *Ground-pipe*, oppoſite to the *Stove* end; which *Hole* is to be left open, or govern'd with its *Regiſter*, to attemper the *Air*, which entring by the *Furnace-pipes*, circulates through *This* to the *Grate* of the *Stove*, and blowing the Fire, iſſues out of the *Funnel*.
7. The *Thermometer* hanging over the Noſe of the *Ground-pipe*, by which to govern the Heat.

FIGURE II.

E. Repreſents the *Furnace Air-pipes*, and how they are placed to paſs through the Fire and Brick-work, with the Projecture of their Noſes, to take freſh Air from without, and carry it into the Houſe.

a. a. The Frame, or Square of Brick-work, on which they lie horizontally to receive the Heat of the Fire.

b. b. The *Air-pipes*.

c c c c c c. The *Noſes* of the *Pipes* projecting beyond the Brickwork both without and within.

FIGURE III.

F. Repreſents the whole *Stove* or *Furnace*.

a. The *Aſh-hole*.

b. The *Fire-grate*.

c c c. The Projection of the *Air-pipes* which paſs thorough the *Furnace*, and *Green-houſe* End-wall, into the Houſe.

d d. The *Air-pipes* to be ſeen as they paſs through the *Furnace*.

e. The *Funnel* or *Shaft*.

f f. Part of the *End-wall* of the *Green-houſe*, thorough which the *Air-pipes* paſs, and project their Noſes.

FIGURE IV.

G. Repreſents the *Aſh-hearth*.

a. The *Aſh-hole*.

b b. One of the Ends of the *Floor-pipe*, turning up, and inſerted into the *Aſh-hearth*, within a little of the Grate.

c c. The *Ground* or *Floor-pipe*, communicating with the inſerted Pipe *b b*.

d d. The *Fire-grate*.

e. The *Regiſter* at the other end of the *Ground-pipe*.

Thus the freſh *Air* entring perpetually thorough the heated Earthen-Pipes into the *Conſervatory*, and as conſtantly circulating thorough the *Orifice* of the *Floor-pipe*, will give continual Supply of qualified *Air* and Nutrition to the *Plants*, as far as concerns that *Element*; and as they are placed nearer or farther from the Noſes of the *Stove-pipes*, enjoy the ſeveral *Climates* and Degrees of *Warmth* which ſhall be found moſt natural and agreeable to them.

The

· The beſt *Pipes*, and only proper for this purpoſe, are ſuch as are · made of the beſt *Crucible-Earth*; for ſhould they be of the beſt *Caſt* · *Iron*, a too intenſe Heat of *Sea-coal* or *Charcoal* Fire would indan- · ger their melting. Let therefore the Fire be rather conſtant than ve- · hement.

· I doubt not but one ſingle Pipe of competent bore, would be as · effectual as three or four, which ſhould not be of above Inch and half · bore.

· *Note*, That any ſort of Fuel whatſoever may be uſed ſafely in this · Stove.

I Conclude all with a *Catalogue* of ſuch excellent *Fruit-Trees*, as may direct *Gentlemen* to the Choice of that which is *good*, and *Store* · ſufficient for a moderate Plantation: *Species* and *Curioſities* being · otherwiſe boundleſs, and without end.

[*Note*, That M, ſignifies *Mural* or *Wall-Fruit*; S, *Standard*; D, *Dwarf.*]

APPLES.

Ruſſet
Kentiſh
S *Holland* } Pippin.
Golden
Golden Ruſſet
Pear-main.
Loane's Pear-main.
Hervy-Apple.
S *Reinet flat.*
Deux-ans, or *John.*
Paſſe-pome.
Pome Apis.
Cour pendue.
Calvile of all ſorts.
Golden Mundi, excellent.
July-flower,
Queen.
Marigold.
Winter Queening.
Leather-Coat.
Cheſnut.
Kirkham.
Cats-head.
Juniting, red, and white, firſt ripe.
Codlin Kentiſh, *&c.*
Red-ſtrakes, } Cider.
Genet Moyle, }

PEARS.

M *Bonne Chreſtienne* } Summer. Winter.
Bergamot ordinary.
Bergamot de Buſy.
Vergoleuſe, excellent.
Poire a double fleure.
Windſor Sovraigne.
Green-field.
Boeurie du Roy.
Ambret.
Cheſſom.
Eſpine d'Yever.
Petit Muſcat.
Petit Blanquet.
S *Blanquet Muſque.*
Orange Bergamot.
Petit Rouſlet, excellent.
Cuiſſe Madame.
Boudin Muſque.
Mouille en Bouche.
Brute e bonne.
King Pear.
Lewes.
Bezy d'Hery.
Rouſslet de Rhemes.
Vert longue.
Cuiſſolet.
Rouſslet Campagne.
Petit Topin.
Meſſire Jean.
Amadot.
French King.
Jargonel.
D. *St. Andrew.*
Ambroſia.
Vermilian.
Lunſac.
Elias Roſe.

Calliot.

Calliot Rosat.
Swans Egg.
Musque Robin.
Golden de Xaintonge.
Poire sans Pepin.
Popering.
Rolling Pear of *Lewes.*
Madera.
S *Hampden's Bergamot.*
Norwich.
Worcester.
Arundel.
Lewes Warden, best without compare.
Dove.
Squib.
Stopple.
S *Deadmans.*
Winter Musque.
Chesil.
Catherine, { Red. King.
Sugar.
Lording.
Red Squash, *Bosbery*, *Watford*, } for *Perry.*

QUINCES.

Portugal.
Brunswick.
Barbary.

PEACHES and NECTARINS.

M *Admirable.*
Alberge, *Sir* H. Capel's.
Alberge, small yellow.
Almond Violet.
Bourdin.
Belle Chevreuse.
Elruge Nectarin, excellent.
Maudlin.
Mignon.
Morella.
Musque Violet.
Murry Nectarin.
Red Roman Nectarin.
Nutmeg, white, red.
Man Peach.
Newington, excellent.
Orleans.
Persique.
Rambullion.
Syon, excellent.
Savoy Mala Cotton, &c.

ABRICOTS.

Musk Abricot.
M *Bishop of* London, Fulham, excellent.
Orange.
Great Bearer, or Ordinary.

PLUMS.

Perdrigon, { White. Blue.
Primordial.
S *Reine Claud.*
& *Mirabel.*
M *White Nutmeg.*
Pear-plum, { White. Black.
Pease-cod.
Prune de l'Isle Vert.
Damasq; *Violet. Date.*
Catharine.
S *Date* white.
Damazeene.
Damson, { White. Black.
Muscle.
Chessom.
Imperial.
Jane.
Saint Julian.
Queen-Mother.
Morocco.
Bullace, { White. Black.

FIGS.

M *Scio*, white.
& *Purple.*
D *Blue.*
Yellow.
Dwarf.

CHERRIES.

D *Carnation.*
Hartlib.
S *Duke Flander.*
& *Kentish.*
M *Black Cherry* of Sir *William Temple.*
Black Heart, true.
Black Orleans.
Great Bearer.
Duke.
Luke Ward.
Morocco.
Prince Royal.
Petworth Amber.
Croone,

Bleeding Heart.
May Cherry.
Begareux, Egriot.
Guynnes.
Cluſter.
Cologne.
Darking wild *Cherry* for *Wine*, excellent.

VINES.

Amboiſe.
Frontinac. { Grizlin, excellent. / White, excellent. / Blue.
Burgundian Grape.
Early Blue.
Muſcatell, { Black. / White, excellent.
Morillon.
Chaſſela.
Cluſter-Grape.
Parſley,
Raiſin.
Burſarobe.
Burlet.
Corinth.
Large Verjuice, excellent for Sauces and Salleting.

GOOSEBERRIES.

Cryſtal.
Amber Great.
Early Red.
Engliſh and *Great* } Yellow.

CORINTHS.

White, Red, } Engliſh, Dutch.
Black, Medicinal.

RASPIS.

White, Red, } Large.
Black, Wild.

MULBERRIES.

Black or *Red.*
White Virginia, for the Silkworm.

BERBERRIES.

Great Berberry.
Berberry without Stones.

STRAWBERRIES.

Common Wood.
Engliſh Garden.
American or *Virginian.*
Polonian.
White Coped.
Long Red.
The *Green Strawberry.*
Scarlet, &c.

MEDLARS.

The *Great Dutch.*
Neopolitan: and
One without Stones.

SERVICES.

Wild.
Pear Sorb.
Azerole.

WALNUTS.

The *Early.*
Great Double.
Tender Scull and Hard.
Bird-nut.

FILBERTS.

White, Red, } *Avelans.*
Large Haſel.
Long, Thin, and Great Round Nuts.

CORNELIONS.

White, Red, &c.

Moſt of which, and innumerable more, diſpers'd (for moſt part) after the ſeveral *Months* in the foregoing *Kalendar*, were here recited for ſuch as will be contented with a *confin'd* and *choice Furniture* for their *Plantations*: And ſuch as would not be impos'd upon, will find the beſt *Ware* and *Dealing* at *Brumpton-Park* near *Chelſey*, cultivated by Mr. *Wiſe*, and the joint Direction of that excellent Gardiner Mr. *London*, worthy of his *Royal Title.*

A LETTER

A LETTER *from Sir* Dudley Cullum *to* John Evelyn, *Esq; concerning the lately invented* Stove *for the Preservation of tender* Plants *and* Trees *in the* Green-house *during Winter; formerly publish'd in the* Philosophical Transactions, *Vol.* xviii. *Num.* 212. *Page* 191.

SIR,

I Cannot but think my self oblig'd in Gratitude to give you an Account how well your lately invented *Stove* for a *Green-house* succeeds (by the Experiment I have had of it) which certainly has more Perfection than ever yet Art was before Master of. *Sir*, I have pursu'd your Directions in laying my Pipes (made of *Crucible* Earth) not too near the Fire-grate, which is nigh upon, or better, than sixteen Inches; and by making a Trench the whole length of my House, under the Paving (for the Air to issue out and blow the Fire) of a convenient breadth and depth (that is, Eighteen Inches both ways, cover'd with an Arch of Bricks) and at the other End of the Trench, having a square Iron Plate answerable to that of my Paving (which is Eighteen Inches) to take off and put on, with a round Hole at the Corner, of about three Inches diameter, with a Lid to slide open, and shut, upon every End of them, as you may have seen upon some Porridge-Pot Covers; so that by opening any of these Holes, or all of them, more or less, or taking off the whole Plate, I can release such a quantity of Air out of the House to blow the Fire so, as to increase or diminish the Blasts; and as you were pleas'd by Letter to inform me, concerning distributing the Air at its Admission more equally thro' the House, I have inserted my Pipes into a Channel all along the Wall, at the end of the House, with those several Overtures you mention'd. All which, *Sir*, I assure you, prove most admirably well: And by which free and generous Communication of yours, you have most highly oblig'd all the Lovers of this Hortulan Curiosity and Recreation, as well as,

SIR,

Your most Faithful and

Humble Servant,

D. CULLUM.

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